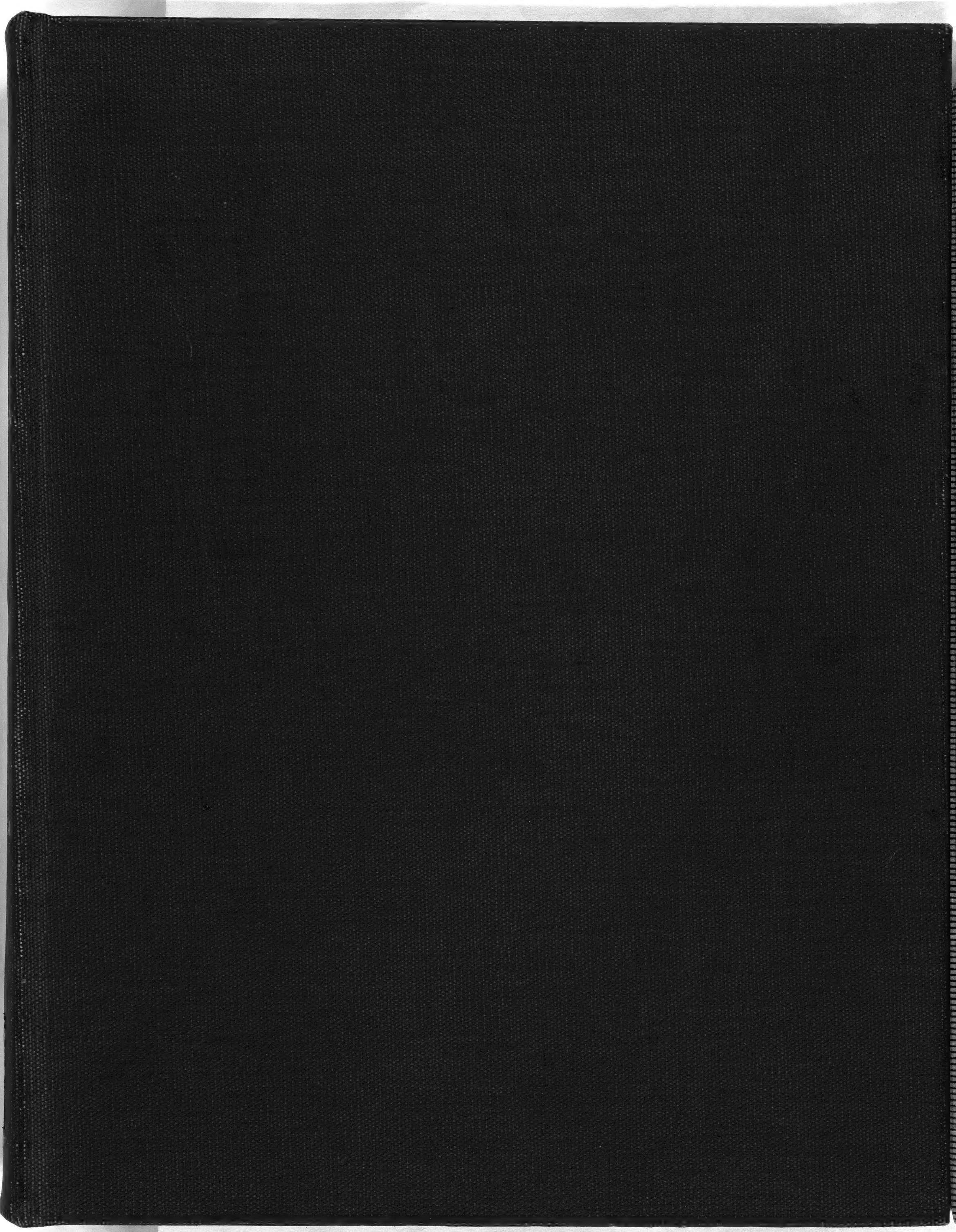
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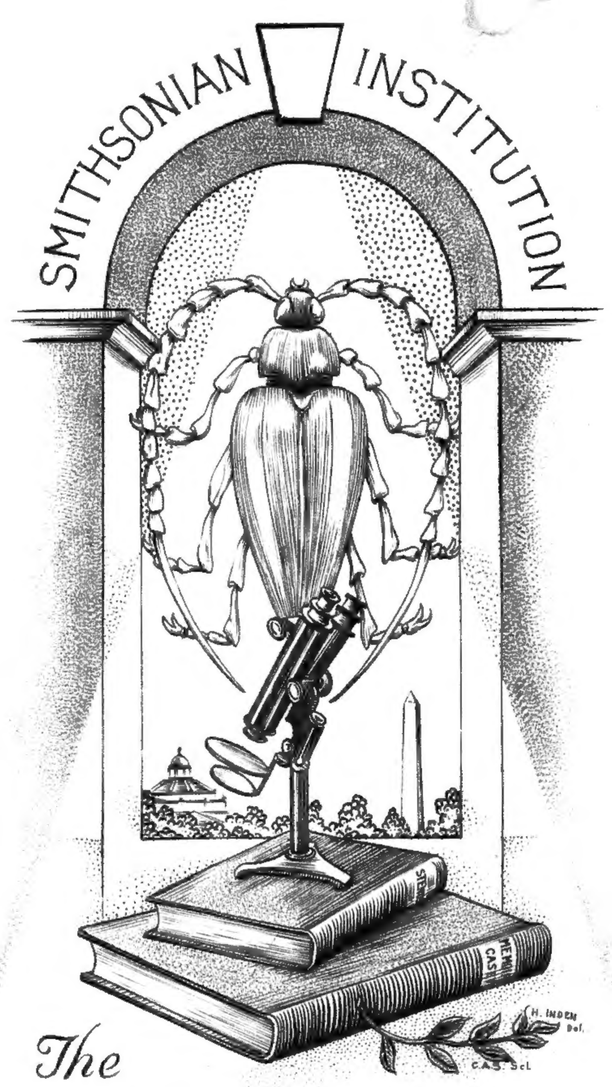

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BIOLOGIA

CENTRALI-AMERICANA.

INSECTA.

COLEOPTERA. Vol. III. Part 2.

MALACODERMATA

BY THE

Rev. HENRY STEPHEN GORHAM, F.Z.S., &c.

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INTRODUCTION.

THE Malacodermata are an assemblage of Coleoptera forming the second half of Latreille's group "Serricornes," and include (as adopted in this volume), in addition to the "Malacodermes" of M. Lacordaire's "Genera des Coléoptères," the families Cleridæ, Lymexylonidæ, Ptinidæ, Bostrychidæ, and Cioidæ. Although, perhaps, some exception may be taken to the term Malacodermata as being inapplicable to these latter families, which have in general the integuments as hard as they are in most Coleoptera, there yet can, I think, be no doubt as to the propriety of uniting them all as one aggregate in a work which, like the present one, treats of a whole fauna. The most obvious character, which all possess in common with the other Serricorn Coleoptera, is the frequency with which the antennæ have their joints developed on their inner sides in such a manner that their articulations become serrate or pectinate. This general character is, it is true, subject to much variation, but the variations are of degree; the antennæ are sometimes flabellate on one or on both sides, or they are simply pectinate, or give rise to long filiform processes, or they are clavate, the three terminal joints being longer or altogether much larger than the rest, or rarely (as in *Ptinus*) they are simple; but the fact remains that in each of the families we find genera reproducing the typical form. The authors of Monographs of the separate families, in dealing with their classification, appear often to have given undue importance to characters which do not hold good for more than two or three of the families, important though they are without doubt in characterizing these lesser associations. It has not been found necessary or useful here to adopt generalizations such as the "Appendicitarses" of Spinola, or the "Mollipennes," "Floricoles," and "Gibbicolles" of Mulsant.

Two families, it will be noticed, are absent from our fauna, viz. the Drilidæ and the Cupesidæ, both of small extent; but of these, the latter, consisting of one abnormal

genus, is represented in America north of Mexico by three species, and it would be premature to assume that both families may not be present.

Perhaps no tribe of beetles has been more neglected than this one, and therefore deductions founded on mere numbers of species as given in our catalogues cannot be considered of great value. A reference to the proportion of species enumerated in this volume to those given in Gemminger and Harold's Catalogue will make this obvious.

Of all the families here united under the Malacodermata the known species amount to but 3530, while from Central America alone we here record 813 species, contained in 120 genera, of which no less than 535 species and 28 genera are now described, as it is believed, for the first time.

The only regions of which our knowledge of these insects was more complete than of Central America previous to the publication of this work were the United States portion of the Nearctic, and the Palæarctic region, exclusive of Asia generally. It is now seen that the Tropical portions of the earth are as rich, or richer, in these groups than the cooler parts, not only from the collections which have come to the Editors, but from other evidence before me from other districts. Hence, if we simply calculate by the percentage of new species to those already described, and if we exclude from our calculation the European species (which numbered 1151 in Marseul's Catalogue of 1866), and those of North America (508 in Crotch's Check List of 1874), as having been better investigated, we shall find, in a rough way, that if the species of this tribe from the rest of the world were only collected and described to the same extent as is here done for Central America, the whole number could not amount to less than 9500. And considering the numbers that have been, and are still being yearly, added to the European and North-American lists, I think we shall be much within the mark in assuming that there exist not less than 12,000 species of this section of the Coleoptera.

With respect to the distribution of the 120 genera to which the Central-American species are referred, any generalization drawn from the whole number would be very much invalidated by the consideration that the work of differentiation has at present only been fairly begun in the Lycidæ, the Telephoridæ, the Melyridæ, the Ptinidæ, and the Bostrychidæ (it is more advanced in the Lampyridæ and Cleridæ), and it is chiefly in these families that it has been found necessary to propose new genera. Of these I observe that, with three or four exceptions, the few species which can be associated with them from other parts are about in equal numbers from North and South America. But in the families in which I have not found it necessary to

make many fresh genera, viz. in the Lampyridæ and Cleridæ, of the former five genera out of sixteen occur in the Nearctic region also, but twelve at least occur and are well represented by species in South America; of the latter there are 25 genera (omitting *Necrobia* which is universal); of these, four occur in the Nearctic, seven in the Nearctic and Tropical South American regions, and five are common to Central and South America.

These facts show the preponderance of relationship between our fauna and that of Tropical South America over any community it possesses with that of America north of Mexico.

But this conclusion is rendered even more apparent if we consider the relative numbers of species in some of the larger genera. *Calopteron* is a genus of the *Lycidæ* eminently typical of Tropical South America, where 70 species at least are known to exist. Now, north of Mexico, only three species are known, but in Central America we have 42 species. To give another instance, from the Telephoridæ, *Chauliognathus* is represented in America north of Mexico by 8 species, in Central America by 45, in South America by 28 species; the latter figure by no means representing the actual number, as the species of that country have not been much worked at, while the North-American are nearly certainly known. On the other hand *Podabrus*, a Nearctic genus, especially abundant in North America, where it has 32 species, is barely represented by a solitary species in Northern Mexico and does not pass further south.

More striking, however, is the marked peculiarity of the Central and South American genera as compared with the faunas of other parts of the globe. If it were true that similar conditions would produce similar forms, how is it that the specialized genera of the Neotropical region are so dissimilar to those of the Æthiopian and Indo-Malayan? Of the few genera common to our district and to the Palæarctic or Tropical regions of the Old World, I do not hesitate to affirm that there is not one which is not of the rank of feebly differentiated forms, or persistent forms of an earlier stage of development. The apparent exceptions in the Lycidæ of *Lycus* and *Lycostomus*, in the Telephoridæ of *Silis*, in the Ptinidæ of *Ptinus*, and in the Cioidæ of *Xylographus*, being due to the imperfectly characterized condition of those genera; while the total absence of such widely distributed and well-marked forms as *Eros* and *Calochromus*, *Luciola*, *Telephorus* (proper), *Malachius*, *Dasytes* (proper), *Henicopus*, *Melyris*, *Cylidrus*, *Opilo*, and *Trichodes* cannot be explained by any intrinsic dissimilarity in the conditions, which certainly do not differ more than they do in the wide areas over which these genera are dispersed,

but rather by the isolation from these other areas, contact with which is only effected through the northern portion of the globe.

One further fact is worthy of notice, viz. that, to whatever cause it may be due, where a genus is common to Central or South America and other distant parts of the World, it is also the case that it is represented by a species also identical or nearly so in both districts. In this case its presence must either be due to transmission recently, through artificial means, or to the conditions having long remained practically similar under which it exists in places so far apart. The genera *Plateros*, *Lycostomus*, *Melitommá*, *Atractocerus*, *Necrobia*, *Apate*, *Dinoderus*, and *Cis*, all afford examples of this remarkable truth. *Cylidrus*, indeed, occurs in Brazil, but only in a species known to inhabit Madagascar and the eastern coast of Africa with very slight modification. *Atractocerus*, of which the distribution is remarkable, is represented by a species hardly differing from an African one. *Dinoderus* is a North American genus but with one cosmopolitan species. *Cis* has one species with difficulty to be distinguished from the common *C. boleti* of Europe.

A few words as to the materials which have been at my disposal may be useful. It is probable that (thanks to the liberality of the Editors, who have spared no trouble or expense to obtain for the purpose of the work all the large collections that were available) such a mass of specimens in this group were never brought together before. These were very largely increased by their own collectors, especially by Mr. Champion, who paid a very great deal of attention to this group, more especially to the Lycidæ, Lampyridæ, and Cleridæ—all numerous in species and individuals in the humid forest-regions of Central America—and sent home large and beautiful series often amounting to 100 specimens of a species. Roughly speaking I do not think that less than 10,000 specimens have passed through my hands, and been separately examined during the progress of the volume.

The northern portion of Mexico (including the large State of Yucatan), and Costa Rica, still remain, comparatively speaking, unexplored.

H. S. G.

May 1886.

ERRATA ET CORRIGENDA.

Page	Line	
14	2	for *Exos* read *Eros*
15	28	*for* II. *read* I.
26	3	after **puniceus** insert (Tab. IV. fig. 1, ♂.)
27	34	for *Calodadon* read *Calocladon*
28, 29	several places	*for* **Calodadon** *read* **Calocladon**
29	12	*for* **pectinicornis** *read* **pectinicorne.** (Tab. IV. fig. 2.)
96	1	*for* 4 *read* 3
124	27	*erase* (Tab. VII. fig. 10.)
129	1	*for* 1 *read* 2 ♂
129	36	*after* (?) *insert* (Tab. IX. fig. 1.)
129	39	*after* "The" *insert* male; *and after* "Chacoj," the female (?) from Pantaleon
178	18	*for* **histrica** *read* **histrio**
180	5	for *C.* read *I.*
187	6	for *Pelonia* read *Pelonium*
208	9	*before* "about" *insert* is
215	13	for *muricata* read *muricatum*
217	16	for *pusillus* read *pusilla*
217	21	The word "GUATEMALA" is wrongly placed; it should precede "San Gerónimo" in line 22.
222	5	insert *Cis* before *bilimeki*

LIST OF PLATES.

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* *Lycostomus fuliginosus* on the Plate.

† The sexes are erroneously marked on the Plate; see text.

‡ *Calopteron tenue* on the Plate.

§ *Plateros latourneuri* on the Plate.

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* *Telephorus normalis* on the Plate.
† *Telephorus cleroides* on the Plate.
‡ *Telephorus photinoides* on the Plate.
§ *Telephorus histrio* on the Plate.
‖ *Telephorus photurinus* on the Plate.
¶ *Silis* (?) *purpurascens* on the Plate.
** *Telephorus lampyroides* on the Plate.
†† *Silis varians*, var., on the Plate.
‡‡ *Euryopa eroides* on the Plate.
§§ *Euryopa albicincta* on the Plate.

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* *Anthocomus rufipennis* on the Plate.

† *Listrus cupronitens* on the Plate.

‡ *Colyphus sanguinipennis* on the Plate.

§ *Clerus nitidus*, var., on the Plate.

‖ *Clerus rubripennis* on the Plate.

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* *Trichodesma albistolatus* on the Plate.

† *Dorcatoma quadrimaculata* on the Plate.

ZOOLOGIA.

Class INSECTA.

Order COLEOPTERA.

Tribe MALACODERMATA.

Fam. LYCIDÆ.

Subfam. *LYCINÆ.*

Of the three recognized subfamilies of Lycidæ this is the only one represented on the American continents, the Calochrominæ and Homalisinæ being absent. It is, however, in the Tropical regions of the New World that the species of the family appear to reach their highest development; and in Central America, accordingly, the number of species seems far from being exhausted at present. The genera, on the other hand, are few, and are not capable of very distinct division.

This being so, it would be unwise to generalize upon the distribution of particular genera. The family, as a whole, is rather uniformly distributed, and takes three principal forms—*Lycus*, *Calopteron*, and *Metriorrhynchus*. The first the typical form of Africa, the second of America, the last of the east (represented by *Eros* in the northern temperate zone).

The association of species from the other regions with these typical genera must be considered a temporary expedient. We are not able, however, in the present state of our knowledge, to separate them.

LYCUS.

Lycus, Fabricius, Mant. Ins. i. p. 163 (1787).

Reserving this genus for those species which have the head rostrate, and which also show any considerable inflation of the elytra, there are seven species known in Central America.

1. **Lycus schönherri.** (Tab. I. fig. 3, ♂.)

Lycus schönherri, Chevr. Col. Mex. Cent. ii. fasc. vi. 147.

Hab. Mexico (*Höge*), Puebla (*Sallé*).

Varies in size from 10 millim. to 18 millim. (♂). The body beneath is sometimes yellow; but the legs are constantly black, except the trochanters. The figure is taken from a small male captured by Höge. In M. Sallé's collection there were specimens as fully developed as the following species.

2. **Lycus carmelitus.** (Tab. I. fig. 1, ♂.)

Niger, femorum basi abdominisque apice flavis; elytris prothoraceque ochraceis, hoc vitta mediana, illis apice oblique nigris.

Mas elytris infra humeros rotundato-ampliatis. Long. 18 millim., lat. 15 millim.

Femina oblonga, elytris infra humeros paululum dilatatis. Long 15 millim., lat. 6 millim.

Hab. Mexico (*Höge*, ♂), Guanajuato (*Sallé*, ♂ ♀).

This species differs from *L. schönherri* in having the femora with the basal half yellow, and the black of the apex of the elytra not so wide, especially at the suture; its inner margin is thus more oblique. In the male the seventh or penultimate segment is acutely lobed at the sides; the centre is bisinuate, angularly emarginate in the middle. The rostrum is as long as the thorax, with the antennæ and rest of the head entirely black. The second joint of the antennæ is so short as not to be easily seen, the third as long as the fourth and fifth united, compressed; the remaining joints with their inner apical angles acute, the inner edge sinuate. The prothorax is about, or nearly, as long as wide, prominent, and elevated into a small carina in front; a shallow, but widened, channel in the middle; the hinder angles are acute, but not much produced in either sex. The elytra show the usual four nervures distinct, the humeral or outer one most so; between them are indistinct indications of transverse reticulation and longitudinal costæ, with intricate confluent punctures; in repose the elytra overlap at the apex.

The figure is taken from Höge's male specimen.

3. **Lycus fernandezi.**

Lycus fernandezi, Dugès, La Naturaleza, iv. p. 175, t. 6. fig. 5 ♂, fig. 6 ♀.

Hab. Mexico, Guanajuato (*Sallé*, ♂ ♀).

This species is undoubtedly very closely allied to the one preceding, and may possibly be only a local variation of it. The most constant differences are:—that the abdomen is wholly yellow; the femora are yellow, except at their apexes; the prothorax is often entirely yellow, but in some specimens has a black vitta on the dorsal channel; the black of the apex of the elytra is more extended in the disk, and is emarginate where the humeral nervure cuts it; the subapical segment in the male is less acutely emarginate.

4. **Lycus godmani.** (Tab. I. fig. 2, ♂.)

Niger, thorace ochraceo; elytris rubricatis, basi ochraceis, his sutura usque ad medium, illo vitta mediana nigricantibus.

Mas elytris infra humeros rotundato-ampliatis; prothorace lateribus subparallelis, angulis posticis fere rectis, paulo productis. Long. 15 millim., lat. 10 millim.

Femina elytris magis ovalibus, minus ampliatis; prothorace basi latiore, angulis posticis acutis, lateribus explanato-elevatis. Long. 14–18 millim., lat. 7–10 millim.

Hab. MEXICO, Misantla (*Höge*, ♂ ♀), Cordova (*Sallé*, ♀).

This distinct and beautiful species forms a transition to the *Lycostomi*, while retaining in a considerable degree the inflated form of typical *Lyci*. The abdominal segments are of the normal structure; the seventh segment in the male is acutely cut out in the middle. In some specimens the abdomen has the sides yellow, but is usually black, with the head and limbs of the same colour. The elytra are brick-red, shading into ochreous at the base; the third nervure is but little raised, the sculpture between very intricate; while intermediate longitudinal nervures can be traced, there are no transverse cells, but confluent and rugose punctuation. The females have the sides of the prothorax more expanded and reflexed than the male (possibly owing to their being larger specimens); it is carinate in front, obsoletely channelled in the centre of the disk. A central vitta, the scutellum, and suture as far as the middle of the elytra are black.

The figure is from the Misantla specimen.

5. **Lycus scutellatus.**

Niger, prothorace elytrisque rubris, his circa scutellum et ad apicem late, illo vitta mediana nigris.

Mas elytris apicem versus dilatatis, segmento ventrali septimo apice haud exciso. Long. 15 millim.

Femina elytris minus dilatatis.

Hab. MEXICO, Cordova (*Sallé*, ♂ ♀).

This appears to be a variable species. Of the three examples in M. Sallé's collection the two males have almost half of the elytra black, while one wants the black scutellar patch; and this example is of paler yellow, and has the base of the femora, the rostrum, and sides of the abdomen yellow. The female has only the apical third and the scutellar region black. The legs are black; but the anterior two pairs at the extreme base and the sides of the abdomen are yellow.

The elytra are strongly costate, with subrugose interstices, the third nervure less raised than the others. The black apex of the elytra sufficiently distinguishes it from *L. godmani*, to which it is clearly allied.

6. **Lycus sallæi.**

Niger, femorum basi et abdominis lateribus flavis, prothorace elytrisque ochraceis, his basi ac tertia parte apicali, illo vitta mediana nigris; elytris postice paulo ampliatis, interstitiis lineis transversis nonnullis reticulatis. Long. 18 millim., lat. 10 millim. ♀.

Hab. MEXICO, Puebla (*Sallé*, ♀).

Thorax transversely quadrate, the front angularly prominent and carinate, the disk obscurely channelled, the lateral margins irregularly rounded, parallel near the base; hind angles right. Scutellum black, margined with fuscous at the apex, foveolate. Elytra with about one fifth at the base and one third at the apex black; punctuation very obsolete; distinct transverse and indistinct intercostal lines.

A single female is in M. Sallé's collection.

7. **Lycus fuliginosus.** (*Lycostomus fuliginosus*, Tab. I. fig. 5, ♂.)

Nigro-fuscus, opacus, thorace elytrorumque basi (sutura excepta) sordide testaceis, illo vitta mediana fusca.
Mas elytris infra humeros modice ampliatis ovalibus, segmento septimo ventrali exciso. Long. 14–16 millim., lat. 10 millim.
Femina latet.

Hab. Guatemala, Calderas (*Champion*).

In form and size allied to *L. godmani*, but differing in its obscure coloration, and in the elytra being a trifle less expanded. The tibiæ are nearly straight, the anterior pair very slightly curved. This character will prevent its being confounded with *L. sordidus*, in which they are strongly curved at the base in the male.

LYCOSTOMUS.

Lycostomus, Motschulsky, Bull. Mosc. 1861, i. p. 136.

This genus is simply an artificial division of *Lycus*, founded on an Asiatic form, and only differing in the less expansion of the elytra in the males. The American species, which agree in this respect, present nothing by which we can separate them from typical *Lycostomi*. Indeed one species (*L. lineicollis*, Chevr.) is so like the Indian *Lycostomus thoracicus*, Waterh., that it might readily be confounded with it. Nine species from Central America seem properly associable with this type.

1. **Lycostomus lineicollis.** (Tab. I. fig. 4.)

Lycus lineicollis, Chevr. Col. Mex. Cent. ii. fasc. vii. 149.

Hab. Mexico, Perote, Coatepec, Esperanza (*Höge*), Cordova (*Sallé*).

In the male the tibiæ are very little bent, and when closed upon the femora no space is left between them; the seventh segment is excised, and, with the preceding ventral plates, is acutely lobed at the sides.

The figure represents a specimen from Coatepec.

2. **Lycostomus tabidus.**

Niger, abdominis apice, prothoracis lateribus, elytrisque pallide flavis. Long. 15–18 millim. ♀.

Hab. Mexico, Peras, Oaxaca (*Sallé*, ♀).

A species nearly allied to *L. lineicollis*, and of which I have as yet seen only four females.

These, however, differ in the following particulars from females of that species:—In large specimens the thorax (though variable) is wider; the black portion of the disk is wider at the base; the colour of the thorax and elytra is quite different, being a dirty horn-colour. The apex of the abdomen is pale.

3. **Lycostomus sordidus.** (Tab. I. fig. 6, ♀.)

Nigro-piceus, subnitidus, prothoracis lateribus elytrorumque margine humerali testaceis.
Mas elytris vix ampliatis, segmento septimo ventrali haud exciso, tibiis omnibus basi fortiter curvatis. Long. 14 millim., lat. 7 millim.
Femina elytris angustioribus, tibiis leviter curvatis.

Hab. GUATEMALA, Calderas (*Champion*, ♂ ♀); NICARAGUA, Chontales (*Janson*, ♀); COSTA RICA, Volcan de Irazu (*Rogers*, ♀, var.).

A Calderas specimen is figured.

4. **Lycostomus championi.** (Tab. I. fig. 7, ♀.)

Nigro-piceus, nitidus, prothoracis limbo elytrisque vitta humerali lata, ante apicem desinente, testaceis.
Mas elytris dilutioribus, infra humeros modice ampliatis; femoribus (apicibus exceptis) et abdominis margine rufo-testaceis, tibiis basi fortiter curvatis. Long. 10 millim., lat. 6 millim.
Femina elytris minus ampliatis, femoribus nigris vel basi extrema testaceis, abdomine margine apicali piceo. Long. 11–12 millim., lat. 5–6 millim.

Hab. GUATEMALA, Dueñas, Capetillo (*Champion*).

A long series of specimens of this species were sent by Mr. Champion. It varies somewhat in the extent of the yellow marginal stripe; in some few cases the entire base of the elytra is yellow. It is allied to *L. sordidus*; but the difference of colour in the femora of the sexes will prevent their being confounded. The seventh abdominal segment of the male is not acutely excised, but simply with a very shallow wide emargination, and has, as well as the sixth, a lancet-shaped lobe at the hind angles.

The specimen figured is from Dueñas.

5. **Lycostomus deustus.**

Nigro-fumosus, prothorace elytrisque ad basin late sed indeterminate sordide testaceis, his subparallelis, infra humeros paulo ampliatis, illo disco plus minusve infuscato, subquadrato, lateribus sinuatis. ♂ ♀. Long. 9–11 millim.
Mas tibiis intermediis et posticis fortiter curvatis.

Hab. PANAMA, Matachin (*Thieme*).

A beautiful series of specimens of this distinct species was obtained by Dr. O. Thieme, and obligingly placed at my disposal by M. R. Oberthür. In form it resembles species of the *L. loripes* group. The males are not usually more widened behind than the females. The rostrum is of moderate length. The thorax has the sides converging only slightly till they meet the sinuate front. The yellow basal portion of the elytra shades off gradually into the smoky-black opaque apical part, which is more than half of their whole length.

6. **Lycostomus loripes.** (Tab. I. fig. 8, ♂.)

Lycus loripes, Chevr. Col. Mex. Cent. ii. fasc. vii. p. 148[1].
Lycus testaceus, Dej. Cat.

Hab. MEXICO[1], Guanajuato, Oaxaca, Teapa (*Sallé*), Almolonga (*Höge*); GUATEMALA (*Sallé*).

I have examined a considerable series of specimens in M. Sallé's collection, by whom this species was originally discovered, and can only come to the conclusion that it varies in size and colour, but that they are not specifically distinct. In the Guanajuato specimens the thorax has the front bisinuate, with prominent anterior angles, and the whole insect is rather more shining and ferruginous red. In Höge's specimens, one of which is figured, the scutellum is yellow; and I have seen one specimen with the tibiæ yellow.

7. **Lycostomus sommeri.** (Tab. II. fig. 2.)

Pallide testaceus, antennis (basi excepta), tibiis, tarsis elytrorumque apice nigris; thorace antice elevato vix carinato, postice canaliculato, angulis posticis acutis. ♀. Long. 11 millim.

Hab. MEXICO, Teapa (*Sallé*); NICARAGUA, Chontales (*Belt*).

Allied to *L. loripes*, but distinct by the black apical third of the elytra &c.
The Teapa specimen is figured.

8. **Lycostomus semiustus.** (Tab. I. fig. 9, ♀.)

Lycostomus semiustus, Chevr. Col. Mex. Cent. ii. fasc. v. 105.

Hab. MEXICO, Cordova (*Sallé*, ♂ ♀), Jalapa (*Höge*, ♀).

The tibiæ of the male, especially the hind pair, are much bent, and the posterior femora thickened; the trochanters subdentate.

A variety taken by Höge at Jalapa, whence the specimen figured was obtained, is paler in colour than the type, and has the underside of the body partly yellow; but, from the shrivelling of the elytra, this I think is due to immaturity.

9. **Lycostomus carnifex.**

Niger, prothoracis lateribus elytrisque sanguineo-rufis, his circa scutellum nigris, lineis octo leviter elevatis; prothorace transverso, antice carinato, medio canaliculato, angulis posticis acutis productis. Rostro in utroque sexu perbrevi. ♂ ♀. Long. 11 millim.

Mas elytris leviter ampliatis, segmento septimo inciso.

Hab. MEXICO, Jacale (*Sallé*).

This insect may profitably be compared with *Lygistopterus sanguineus* (L.), which it resembles in size and colour, as illustrating the differences between the genera. The rostrum is as short as in that species; the second joint of the antennæ, however, is much shorter. The thorax has the usual carina in front. In *L. sanguineus* the channel

is continued to the front, the hind angles are acute and turned outwards, and the disk lacks the oblique ridge from the hind angle so characteristic of *Lygistopterus*. Both of these species also closely resemble *Plateros lateritius*, which of course is known by its having no rostrum.

LYGISTOPTERUS.

Lygistopterus, Mulsant, Ann. Soc. Agr. Lyon, 1838, p. 39.

A genus not hitherto recorded from the northern continent, if we except one species from the United States, which probably belongs to it (*L. perfaceta*, Say), and having for its type the European *Dictyoptera sanguinea*. It is, however, well represented in South America by fine species of elongate parallel form, with the elytra blue or blackish at the apex, with the base more or less red.

It may perhaps be best known by the deep irregular sculpture of its thorax, which consists of a central channel, *continued to the apex*, of which the sides are often raised, and from the front of which an oblique carina proceeds to near the hind angles. The central channel is often angularly widened in the middle. The rostrum is variable in length, often very short. The antennæ have the second joint short, but not so short as in the preceding genera. The elytra usually have three or four raised lines, the surface covered with very close intricate puncturing, partly concealed by fine close pubescence.

Four species have at present been seen by me from Central America.

1. **Lygistopterus nobilis.**

Niger, nitidus, prothoracis margine laterali elytrisque flavis, his dimidio apicali nigro-cæruleis, sutura juxta scutellum nigra. Long. 15 millim.

Hab. NICARAGUA, Chontales (*Janson*).

While superficially very much resembling *L. eximius*, Bourg., this species cannot be confounded with it if the following characters are observed:—the thorax has the width of the elytra at the base, is narrowed towards the front, the sides are much more widely yellow; and the elytra have a black patch round the scutellum, extending a little way down the suture. The rostrum is also of an average length, instead of being very short.

2. **Lygistopterus amabilis.** (Tab. I. fig. 10.)

Niger, nitidus, prothorace et elytris flavo-testaceis, his post medium nigro-cyaneis, illo vitta mediana nigra, angulis posticis late rotundatis. Long. 15–16 millim.

Hab. NICARAGUA, Chontales (*Belt*).

Thorax disciform, the central channel rather linear and narrow, and, in one specimen, not distinct in front. Both the specimens are females; they have the apical segment with an acute incision, which is continued as a deep fovea to its base.

3. **Lygistopterus sulcicollis.**

Niger, rostro tibiis anticis longitudine æquali; elytris sordide flavis, circa scutellum usque ad medium infuscatis; thorace inæquali, sulco profundo in medio dilatato, lateribus flavis. ♀. Long. 16 millim.

Hab. Mexico, Juquila (*Sallé*).

This peculiar species is in the colour of the elytra unlike any which are yet described; yet its characters are entirely those of a *Lygistopterus*. The thorax has the central channel wide and deep, its sides and the oblique carina very strongly raised, the former terminating in a tubercle near the base, which, with the sides, is reflexed. It is unique.

4. **Lygistopterus hæmatopterus.** (Tab. II. fig. 1.)

Nigro-cyaneus, elytris rubris, prothorace inæquali, sulco mediano dilatato, rostro brevi. ♂ ♀. Long. 12–13 millim.

Hab. Mexico, Jacale (*Sallé*).

Blue-black, shining beneath; antennæ scarcely half the body's length, compressed, not serrate; the joints scarcely widened more internally than outwards; rostrum short. Thorax as wide as long, the usual parts raised, and very evident blue-black rather shining. Elytra bright brick-red, clothed with very close pubescence, with not distinct raised lines. The male has the penultimate segment not excised.

CALOPTERON.

Calopteron, Guérin, Voyage Coquille, p. 72 (1830).

Upward of a hundred species have now been described, and nearly all from South America. *Calopteron* appears to be *the* characteristic genus of the Lycidæ in America; I have not seen any species from other parts of the world which can properly be referred to it. It extends as far north as the United States; its limits in the southern direction are not well ascertained.

At present the genus contains both species with very inflated elytra and very narrow linear insects, and is no doubt capable of subdivision. Hitherto but one species (*C. corrugatum*, Candèze) has been recorded, in any systematic work, from Central America; recent exploration has shown that they are as abundant there as in South America. We have now to record twenty-seven species.

Section A i. *Elytra widened posteriorly; thorax with a simple carina; antennæ at most only serrate.*

1. **Calopteron bifasciatum.** (Tab. I. figg. 11, 12 var.)

Niger, thorace subquadrato lateribus luteis; elytris ad apicem dilatatis et convexis, læte cæruleis, basi et fascia pone medium flavis. ♂. Long. 14–20 millim.

Var. *a*. Elytris pallide flavis, fascia subbasilari marginem non attingente et apice late cæruleis. Long. 13–15 millim.

Var. *b*. Thorace et elytris flavis, his apice late violaceo, illo linea mediana nigra. Long. 14–20 millim. (Tab. I. fig. 12.)

Hab. Type: MEXICO, Jalapa (*Höge*), Vera Cruz (*Sallé*); GUATEMALA, Zapote, San Gerónimo, Pancina, San Joaquin, Vera Paz (*Champion*); BRITISH HONDURAS, Belize (*Blancaneaux*); COSTA RICA, Volcan de Irazu (*Rogers*).

Var. *a*: MEXICO, Vera Cruz (*Sallé*); COSTA RICA, Caché (*Rogers*).

Var. *b*: MEXICO, Vera Cruz (*Sallé*); NICARAGUA, Chontales (*Janson*); COSTA RICA (*Mus. Gorham*).

Very nearly allied to *basale*, Kirsch. The elytra are clathrate, reticulate; there are four principal nervures; the intervals are divided by longitudinal costules below the middle; the outer interval (*i. e.* that next the outer margin) is not divided till just before the apical blue portion; but individual cells are frequently divided, or the transverse lines branch; towards the apex itself the cellular formation is very irregular; the first, second, and fourth nervures are continued. The portion of the elytra immediately before the apical blue part is much depressed transversely; the suture is sinuous; and the elytra in repose overlap.

This species has been identified by M. Bourgeois with the *C. bifasciatum* of Dejean's Catalogue.

The figure 11 is of a specimen from Zapote; the figure 12 of var. *b* from a Chontales specimen.

2. **Calopteron corrugatum.** (Tab. II. fig. 3.)

Calopteron corrugatum, Candèze, Mém. Liége, 1867, p. 357, t. 3. fig. 1.

Hab. MEXICO, Cordova (*Sallé*, type); NICARAGUA, Chontales (*Belt*), San Juan (*Sallé*).

This species resembles the var. *b* of *C. bifasciatum* in colour, but is essentially distinct; the elytra are very slightly depressed, their suture is not sinuous, nor do they overlap; the first four interstices are not divided, but single cells are so occasionally. The transverse lines vary in the degree of closeness in different specimens.

The figure is of a Cordova specimen.

3. **Calopteron pallidum.** (Tab. I. fig. 14, ♀.)

Nigrum, prothoracis lateribus et elytris pallide flavis, his fascia ante medium indeterminata fusca, illo linea mediana nigra; elytris postice spathulato-dilatatis, nervulis quatuor elevatis, interstitiis transversim reticulatis, interstitio extimo ad apicem diviso. Long. 16–17 millim.

Hab. COSTA RICA, Caché (*Rogers*).

The elytra are very much more dilated before the apex than in the variety of *palpale*, which has a dark fascia; and, as a consequence, the fifth or exterior interstice is wider; and the cells are here divided by a distinct line.

4. **Calopteron palpale.**

Calopteron palpale, Kirsch, Berl. Zeit. 1865, p. 58 [1].

Hab. Guatemala, San Juan, Vera Paz (*Champion*); Nicaragua, Chontales (*Janson*); Costa Rica, Caché (*Rogers*).—Colombia [1]; Brazil.

Var. *a.* Elytris fascia parum distincta nigrescente.

Hab. Nicaragua, Chontales (*Belt*); Costa Rica, Caché (*Rogers*).

Var. *b.* Corpore flavescente; antennis nigris, basi flavis; tarsis fuscis.

Hab. Panama, Chiriqui.

Var. *c.* Flavum, antennis, tibiis, tarsis et elytrorum apice nigris.

Hab. Nicaragua (*Belt*).

Var. *d.* Flavum, antennis nigris, basi testaceis; elytris fascia interrupta nigrescente.

Hab. Guatemala, Zapote (*Champion*).

Although Kirsch does not appear to have seen varieties of this species, I have no doubt they are all referable to one type; indeed it is probable that many of the allied species, including the following one, are only forms, inseparable except by colour, though tolerably constant as races where they occur.

5. **Calopteron affine.** (Tab. I. fig. 13, ♀.)

Calopteron affine, Lucas, Voy. Casteln. 1859, p. 80 [1].

Hab. Mexico, Orizaba (*Sallé*); Guatemala, San Gerónimo, Cubilguitz (*Champion*); Nicaragua, Chontales (*Belt, Janson*).—Brazil [1].

A Chontales specimen, collected by Mr. Belt, is figured.

6. **Calopteron melanopterum.** (Tab. I. fig. 15.)

Calopteron melanopterum, Lucas, Voy. Casteln. 1859, p. 81 [1].

Hab. Guatemala, San Gerónimo (*Champion*).—Brazil [1].

A specimen from Rio Janeiro, in my collection, shows faint indications of the pale spots which are conspicuous in the single specimen which has at present come from Central America.

7. **Calopteron reticulatum.** (Tab. I. fig. 17.)

Lycus reticulatus, Fab. Syst. Ent. p. 203 [1].

Lycus reticulatus, Ol. Ent. ii. 29, t. 1. fig. 7 [2].

Calopteron typicum, Newman, Ent. Mag. v. p. 380.

Calopteron duplicatum, Fald. Proc. Ac. Phil. i. p. 303.

Hab. North America [1 2], New York, Texas (*Belfrage*).—Mexico, Jalapa (*Höge*), Oaxaca, Vera Cruz, Puebla (*Sallé*); Guatemala, San Gerónimo, Dueñas, Zapote (*Champion*); Costa Rica (*v. Patten*).

A widely dispersed and very variable species, with which very probably one or two more of the following forms will have to be united.

The figure is of a specimen from San Gerónimo.

8. **Calopteron serratum.**

Lycus serratus, Linn. Syst. Nat. i. 2, p. 649[1].

Lycus serratus, Ol. Ent. ii. 29, t. 1. fig. 5.

Hab. GUATEMALA, Zapote (*Champion*); NICARAGUA, Granada (*Sallé*), Chontales (*Janson*, *Belt*).—SOUTH AMERICA, Cayenne[1].

Apparently the only distinction between this species and *C. reticulatum* is the combination of a yellow body with a black scutellar patch, and the greater or less indentation of the black apical portion at the first costal nervure.

9. **Calopteron jimenezi.**

Calopteron jimenezi, Dugès, La Naturaleza, 1878, iv. p. 181, t. 6. fig. 8.

Hab. MEXICO, Guanajuato (*Sallé*).

10. **Calopteron flavipes.** (Tab. I. fig. 18, ♀.)

Calopteron flavipes, Blanch. Voy. d'Orb. Ent. p. 126[1].

Hab. GUATEMALA, Zapote (*Champion*).—BOLIVIA[1].

The body, scutellum, legs, thorax, and base of the antennæ are yellow; the sides of the abdomen, tarsi, and disk of the thorax are slightly infuscate.

This species and the three preceding it agree closely in form and sculpture; they differ in characters which, though tolerably constant when specimens from one locality are examined, will, I believe, prove illusive when tested by series from intermediate places.

11. **Calopteron divergens.** (Tab. II. fig. 4, ♂.)

Nigrum, trochanteribus, femoribus basi, prothorace (linea mediana excepta), elytrorum basi et fascia in medio, postice dentata, flavis; elytris obcordiformibus, ad apicem valde expansis divergentibus. ♂ ♀.

Mas brevior, elytris ad apicem fortiter distantibus. Long. 10–12 millim., lat. max. 10 millim.

Femina elytris minus expansis vix distantibus. Long. 15 millim., lat. max. 9 millim.

Hab. NICARAGUA, Chontales (*Janson*).

A species or race differing so remarkably from all other forms of *reticulatum* in the short obcordate form of the elytra, and in their divergence at the sutural angle, that it seems more worthy of a specific name than some others. In addition to this character, the black portion of the thorax is reduced to a narrow line, its margins are very much reflexed, and its posterior angles acute. The elytra have no scutellar patch; the hind margin of the yellow fascia is dentate on the second nervure and produced a little on

the suture. The second and fourth nervures are costate, the first and third lie in the valley between. The black fascia shows a tendency to become obsolete, in the females especially, in one specimen of which it is reduced to two spots. The underwings are ample.

12. **Calopteron scapulare.** (Tab. I. fig. 25; Tab. II. fig. 5, ♂.)

Nigrum, prothorace (disco excepto) elytrisque ad humeros plus minusve sordide rufis. Long. 6–9 millim. ♂ ♀.

Hab. Mexico, Vera Cruz (*Sallé*); Guatemala, Zapote, La Tinta, San Juan, and Vera Paz (*Champion*).

The small size, moderately dilated form, obscure blackish colour, with shoulders more or less yellowish red, and thorax transverse, with acute hind angles and well-marked carina, will enable one to recognize this species. The elytra are more suddenly dilated, and more rounded at the apex in the male. The second and fourth nervures are costate.

This little *Calopteron* was taken in considerable numbers by Mr. Champion at Zapote. It stands in Parisian collections under the name *C. scapularis*, and was so named for me by M. Bourgeois.

The figures are from Zapote specimens.

13. **Calopteron posticum.**

Calopteron posticum, Kirsch, Berl. Zeit. 1870, p. 378; Bourg. Ann. Soc. Ent. Fr. 1879, p. 29[1].

Nigro-piceum, capite, prothorace, pectore, pedibus anticis elytrisque testaceis, his fascia ante medium, ad suturam latiore, apiceque nigro-fuscis; prothorace subquadrato, valde carinato, angulis posticis acutis, productis. Long. 7–8 millim.

Hab. Nicaragua, Chontales (*Janson*); Panama, Matachin (*Thieme*).—Colombia[1].

A few specimens only of this have been received from Chontales. It is rather more depressed than *C. scapulare*; the head is frequently infuscate on the crown, as are also the tips of the palpi. All the tarsi, and often the anterior legs, are dark, excepting at the base. The dark fascia of the elytra is usually interrupted by the yellow suture and costate nervures, and is often nearly obliterated. It is very nearly allied to the following species; but the antennæ appear to me to be longer. Mr. Oberthür has communicated to me a fine series of this species taken by Dr. Thieme in Panama.

14. **Calopteron juvenile.** (Tab. I. fig. 16.)

Calopteron juvenile, Bourg. Comptes Rendus Soc. Ent. Belgique, 1879, p. xvi.

Hab. Costa Rica (*v. Patten*), Caché (*Rogers*).

Very like the last species, but darker in colour, the antennæ scarcely so long as the elytra, and with only a shoulder-spot of yellow at the base. The central yellow fascia is usually neatly and distinctly defined. The thorax is similar in form to that of *C. posticum*, with acute produced hind angles.

Section A ii. *Thorax with a simple carina; antennæ pectinate in the male, acutely serrate in the female; three raised lines on the elytra.*

15. **Calopteron triste.** (Tab. I. fig. 21, ♀.)

Nigrum, elongatum, elytris lineis tribus elevatis, intervallis transversim reticulatis; prothorace carinato, lateribus flavis sinuatis.

Mas antennis flabellato-pectinatis, abdominis segmento penultimo profunde exciso. Long. 10 millim.
Femina antennis acute serratis, abdominis segmento apicali integro. Long. 11 millim.

Hab. GUATEMALA, Calderas, Dueñas (*Champion*).

The elytra are very thin, and usually shrivelled when dry; but it is a very easily recognized species if the three raised nervures are noticed, together with the entirely black elytra (which are gradually widened to the middle of their length), the thorax with yellow sides, and the undivided carina. *C. tristis*, Waterh. (Trans. Ent. Soc. 1878, pp. 99 & 106; Illust. of Typ. Col. in Coll. B. M. p. 24, t. vi. fig. 5), is a different species, for which he has made a genus, *Eurrhacus*, allied to *Emplectus*.

The figure represents a Calderas specimen.

16. **Calopteron rufulum.** (Tab. II. figg. 8 ♂, 9 ♀.)

Rufo-testaceum, abdomine, pedibus (basi excepta), antennis, prothoracis carina et scutello nigris; elytris tricostatis, intervallis scalariformibus; prothoracis lateribus fortiter bisinuatis. ♂ ♀.
Mas antennis flabellato-pectinatis. Long. 6–9 millim.
Femina antennis acute serratis. Long. 9–11 millim.

Hab. MEXICO, Cordova (*Sallé*); GUATEMALA, Zapote, San Gerónimo, Cubulco, Cubilguitz (*Champion*); COSTA RICA, Caché (*Rogers*).

M. Bourgeois has informed me that this is the *C. rufulum* of Dejean's Catalogue; and I adopt the name for convenience. It must not be inferred that I have myself compared it, nor that I have seen specimens from the locality there given, viz. Carthagena. Two specimens in Sallé's collection have a minute black spot at the apex of the elytra. The peculiar form of the thorax is well shown in our figure of the female; but it is frequently as strongly indented in the male.

The male figure is a Zapote specimen; the female from Cordova.

Section A iii. *Elytra parallel, with four raised lines; thorax with a simple carina; antennæ often pectinate, at least in the male.*

17. **Calopteron pennatum.** (Tab. II. figg. 11 ♀, 12 ♂.)

Calopteron pennatum, Bourgeois, Ann. Soc. Ent. Fr. 1879, p. 32[1].

Hab. MEXICO, Cordova (*Sallé*[1]); GUATEMALA, Chiacam, Cahabon (*Champion*); NICARAGUA, Chontales (*Janson*); COSTA RICA (*v. Patten*).

The male, fig. 12, is from San Gerónimo; figure 11 is of a female from Guatemala.

Var. Minor, elytris triente basali tantum flavo, intervallis ad apicem irregulariter clathratis subrugosis.

Hab. GUATEMALA, San Gerónimo, Balheu (*Champion*).

18. **Calopteron obliquum.** (Tab. II. fig. 13.)

Exos obliquus, Say, Boston Journ. i. p. 154[1].

Lineare, nigrum, prothoracis lateribus et elytrorum dimidio basali, sutura excepta, rufo-ferrugineis; elytris lineis quatuor, secunda et quarta fortiter elevatis; pedibus longis, trochanteribus pallidis. ♂ ♀.
Mas minor, magis linearis, segmento ventrali septimo angulariter exciso tantum distinctum. Long. $5\frac{1}{2}$–7 millim
Femina major. Long. 9–10 millim.

Hab. Mexico[1], Cordova (*Sallé*), Jalapa (*Höge*); Guatemala, San Gerónimo, San Juan, Senahu, Sabo, Cahabon, Balheu, Chiacam, Cubilguitz (*Champion*); Nicaragua, Chontales (*Janson*).

This seems to be a common species in Mexico and Vera Paz. The thorax is narrowed from the base to the front; its sides are a little sinuate, and the hind angles very acute and produced. The carina is entire, and is usually pale with the disk black on each side.

The elytra have the second and fourth costæ strongly raised; and the black of the apical portion extends, as usual, further up the intervals, the outer margin and the fourth costa being continued as yellow lines further than the second. The suture is black as far as the end of the first interval.

A Sabo specimen is figured.

19. **Calopteron lineare.** (Tab. II. fig. 14.)

Lineare, nigrum, prothorace elytrisque rufo-testaceis; his 4-costatis, intervallis plus minusve nigrescentibus, regulariter clathrato-punctatis; illo disco nigro, carinato carina flava; pedibus longis, basi flavis; antennis utroque sexu serratis. Long. 7–8 millim.

Hab. Guatemala, Capetillo, Zapote (*Champion*); Costa Rica, Volcan de Irazu, alt. 6000–7000 feet (*Rogers*).

The extremely linear form, and evenly costate elytra, with square punctures regularly disposed in the interstices, and their disposition to be dark, leaving in some examples only the alternate costæ pale, will cause this elegant insect to be recognized among its allies. The thorax is narrowed from the base to the front, which is round; the hind angles are acute, the basal margin bisinuate, with the middle very finely cut out where the carina ends; but this is not clearly visible in all examples.

The figure is of a large specimen from Irazu.

20. **Calopteron terminale.**

Lineare, nigrum, prothorace elytrisque testaceis; illo disco fusco, carinato, lateribus fortiter bisinuatis; antennis serratis, articulo ultimo flavo; pedibus longis, basi flavis; elytris squamulis minutis vestitis, 4-costatis, costis secunda et quarta elevatis. Long. $5\frac{1}{2}$–$7\frac{1}{2}$ millim.

Hab. Guatemala, San Juan (*Champion*); Nicaragua, Chontales (*Janson*).

The smallest species of the genus I have yet seen, and very like *C. lineare*, but clearly distinct by the yellow terminal joint of the antennæ, the indented, sinuate sides, and prominent front of the thorax (which has the carina entire and the base without the least appearance of a notch), and the entirely pale elytra.

21. **Calopteron ichnoides.** (Tab. II. fig. 21, ♂.)

Nigrum, prothoracis lateribus maculaque humerali læte flavis; elytris postice paullo dilatatis, lineis quatuor, secunda et quarta elevatis, intervallis irregulariter reticulatis; antennis acute serratis, fere pectinatis. ♂ ♀. Long. 7½–11 millim.

Mas elytris postice modice ampliatis, antennis subpectinatis.

Femina elytris subparallelis, antennis acute serratis.

Hab. Guatemala, Capetillo, Dueñas, Purula (*Champion*).

This and the following species closely resemble each other; and their determination can scarcely be effected unless both are studied together. They have a considerable likeness to *Ichnea mexicana*, a species of Cleridæ.

The figure represents a Capetillo specimen.

22. **Calopteron mimicum.** (Tab. II. fig. 22.)

Nigrum, prothoracis lateribus angustius strigaque humerali in callo per costam paululum provecta flavis; elytris subparallelis, lineis quatuor, secunda et quarta magis elevatis, intervallis reticulatis, areolis subquadratis; antennis serratis, articulis tertio usque ad decimum angulis internis subrectis. Long. 7–9 millim.

Mas minor et angustior, antennis articulis interne subacutis.

Hab. Guatemala, Capetillo, Dueñas, Senahu (*Champion*).

When this species is compared with *C. ichnoides*, it will be seen to be more parallel; and the humeral striga is narrower, but continued further along the humeral costa. The most important difference is in the antennæ of the males. In *C. mimicum* the fourth to the tenth joints are serrate, their apical internal angles are nearly right angles; in *C. ichnoides* they are produced into an acute flat "ramus," which is longer than the joint itself. It appears to be a commoner species.

Our figure represents an example from Capetillo.

Section B. *Thorax with the carina divided behind; elytra moderately widened, with four raised lines, areolets irregular.*

23. **Calopteron beltii.** (Tab. II. fig. 19, ♀.)

Nigrum, pectore, pedibus basi, prothorace elytrisque rufo-testaceis, his macula magna subrotundata paulo post medium, illo carina postice canaliculata et vitta mediana nigris. ♂ ♀. Long. 10–15 millim.

Hab. Nicaragua, Chontales (*Belt*).

The species of this section of *Calopteron* are easily recognized by their rather soft, somewhat convex elytra, with four nervures, two or three of which are more strongly raised, with irregular areolets, and by the divided carina of the thorax, which thus has a narrow channel in its basal half, which is sometimes open at the base, at others closed.

Several species thus characterized have been described from Colombia and New Granada. *C. beltii* is subelongate, rather less so in the male; the thorax is narrowed in front, the sides scarcely sinuate, the hind angles acute. The elytra are sometimes a

little infuscate round the scutellum, which is black. The black patch is not so wide either at the suture or outer margin as in the centre. The abdomen is occasionally yellow in its centre to near its apex. Very few specimens have yet been sent.

24. **Calopteron miniatum.**

Nigrum, prothoracis lateribus elytrisque miniatis; his lineis quatuor, tertia subobsoleta, sutura basi nigricante. Long. 10 millim. ♀.

Hab. Costa Rica, Rio Sucio, Caché (*Rogers*).

The thorax has the sides evenly narrowed to the front in the female. In a specimen which is probably the male the sides are subsinuate. The body is wholly black, the antennæ a little acutely serrate; the sides of the thorax and elytra vermilion-red, with the exception of the suture for about one quarter at the base.

25. **Calopteron matutinum.** (Tab. II. fig. 7.)

Nigrum, prothoracis lateribus et elytrorum triente basali (sutura excepta) læte ferrugineis; elytris lineis quatuor elevatis, tertia obsolescente; antennis latis, utriusque sexus serratis. ♂ ♀. Long. 5–12 millim.

Mas multo minor, segmento penultimo exciso.

Femina major, segmento apicali in medio diviso.

Hab. Mexico, Toxpam (*Sallé*); Guatemala, Cubilguitz, Cahabon, Chiacam, La Tinta, San Juan (*Champion*).

This and the two following species present an instance of almost complete similarity in colouring and form. The *four* nervures will distinguish the present one from *C. tricostatum*, the black suture from *C. difficile*.

The thorax has the carina divided from the middle to the base, which, where it terminates, is divided by a fine incision. The form of the thorax is trapezoidal, with acute hinder angles.

The specimen figured is from La Tinta, the department of Vera Paz.

26. **Calopteron difficile.**

Nigrum, prothorace (vitta mediana excepta) elytrorumque dimidio basali flavis; elytris lineis quatuor elevatis, tertia minus distincta, areolis irregularibus, lineis transversis haud rugosis; antennis serratis. ♂ ♀. Long. 5–12 millim.

Mas multo minor, segmento penultimo exciso.

Femina major.

Hab. Guatemala, Teleman (*Champion*); Nicaragua, Chontales (*Janson*).

Closely allied to *C. matutinum*; it, however, differs, not only in colour (being rather yellow than rusty red) and in not having the basal part of the suture black, but the transverse divisions of the interstices are not so numerous nor so strongly raised. The difference in size of the sexes is sometimes very remarkable—a male of the smallest size being found still attached to a female of the largest, after their transmission to this country.

Section B ii. *Thorax with the carina divided at the base; elytra moderately widened, with three raised lines.*

27. **Calopteron tricostatum.** (Tab. II. fig. 6, ♀.)

Nigrum, prothoracis lateribus elytrorumque dimidio basali ferrugineis; elytris lineis tribus elevatis, intervallis irregulariter areolatis. Long. 6–10 millim. ♂ ♀.

Mas minor, segmento penultimo exciso.

Femina major, segmento apicali medio minute diviso.

Hab. MEXICO, Toxpam (*Sallé*); GUATEMALA, Pancina (*Champion*).

The disparity in size between the sexes is not so great as in *C. matutinum* or *C. difficile*. The thorax is more evenly rounded in front; and the hind angles are rather more acutely produced. The carina is divided and open at the base, as in the preceding species.

This species also resembles *C. xanthomelas*, Kirsch. The divided carina of the thorax, and the antennæ not pectinate in either sex, will enable them to be easily separated.

CÆNIA.

Cænia, Newman, Ent. Mag. v. p. 381 (1838).

The species given in the Munich Catalogue as belonging to this genus, from Madagascar, Ceylon, and Mamuku, do not agree in typical characters; and I do not consider that the genus is found out of the North-American Region. It is best characterized by the expanded oval elytra with three strongly raised and six subsidiary nervures, the deeply indented sides of the thorax, and its complete simple carina. There are known at present four species in Central America.

1. **Cænia cardinalis.** (Tab. I. fig. 24, ♀.)

Nigra, prothorace elytrisque sanguineis, his lineis tribus sat fortiter elevatis, ad apicem conjunctis, et sex alteris haud distinctis; illo carinato, disco infuscato, lateribus fortiter bisinuatis; antennis flabellato-pectinatis. Long. 15 millim.

Hab. COSTA RICA, Volcan de Irazu (*Rogers*).

The whole of the body, with the antennæ, palpi, and legs, is black; the thorax is orange-red, with the centre infuscate; the carina is complete, dark in the middle. The elytra are vermilion, with the base of the suture very narrowly black. Three lines are strongly marked—one subsutural, one discoidal, and the humeral one; these unite near the apex; six finer lines are present, one in each interstice, excepting that three intervene between the discoidal and the humeral nervure; of these three the middle one appears to represent the ordinary third raised line where four are found; it is rather stronger than those on each side of it, and is much raised at the base. The transverse lines are remarkably regular, and divide the area into nearly square meshes; they

rarely "break joint;" but where they do so the reticulation is "honeycomb"-shaped. This naturally takes place at the apex of the elytron. This description of the sculpture will in a general way apply to all the other species of the genus known to me, and will therefore only be referred to when any difference presents itself. The thorax is also of the same structure in other species; that is to say, the front and each side are prominent in the middle, the hind angles acute and produced, the base bisinuate.

Only three specimens, all females, have been found.

2. **Cænia scapularis.** (Tab. I. fig. 23, ♀.)

Cænia scapularis, Newman, Ent. Mag. v. p. 381[1]; C. O. Waterh. Ill. Typ. Col. B. M. i. p. 23, t. vi. f. 6[2].

Hab. North America[1 2].—Mexico, Oaxaca (*Sallé*); Guatemala, Capetillo, Purula (*Champion*).

This agrees sufficiently with the figure of Newman's type given by Mr. C. Waterhouse, as well as with his description, except that the thorax has the sides broadly yellow. On what grounds it is given as a synonym of *C. dimidiata* (Fabr.) by Lacordaire, Genera Col. iv. p. 299, and in the Munich Catalogue, I am not aware. The Fabrician description would apply better to the next species. The central nervure of the three intermediate between the discoidal and humeral, is only slightly raised at the base.

The male of this species is smaller, and has the flabellate branches of the antennæ much finer at their base, and longer than those of the female.

3. **Cænia sinuata.**

Cænia sinuata, Kirsch, Mittheilungen aus dem kön. zool. Mus. Dresd.

Nigra, prothoracis lateribus elytrorumque dimidio basali flavis, elytris sutura anguste et circa scutellum nigris. Long. 10–15 millim. ♂ ♀.

Mas minor, antennis flabellato-pectinatis.

Femina antennis articulis latioribus flabellatis.

Hab. Mexico, Oaxaca, Cordova, Cosamaloapam (*Sallé*); Guatemala (*Sallé*), var. sutura concolori; Nicaragua, Chontales (*Janson*).

4. **Cænia interrupta.** (Tab. I. fig. 22.)

Nigra, prothoracis lateribus fasciaque elytrorum, ad suturam et in medio interrupta, flavis, antennis maris longe flabellatis, angulis posticis thoracis acute productis. Long. 13 millim. ♂ ♀.

Mas antennis longe flabellatis, ramis articulis triplo fere longioribus.

Femina antennarum articulis basi latioribus compressis, interne flabellatis.

Hab. Guatemala (*Sallé*, ♀), San Gerónimo (*Champion*, ♂).

Only two specimens of this very elegant insect have been seen by me. The thorax has the sides and front very prominent, the disk strongly carinate; the hind angles are more acutely produced than in either of the other species; the base has a small notch where the carina terminates.

PLATEROS.

Plateros, Bourgeois, Comptes-rendus, Soc. Ent. Belg. 1879, p. 16; Waterh. Ill. Typical Col. B. M. i. p. 25 (1879).

This genus, in the wide sense given to it by Mr. Waterhouse, is distributed over nearly all the world. I have a species from Lake Nyassa, in Africa, which does not differ essentially from the species from Asia attributed to it by him. It would be very difficult to point out characters which would separate the Eastern species into a homogeneous group. The species here treated agree in having the antennæ simply serrate in both sexes, the thorax rounded in front, the base bisinuate, often notched in the centre, with acute, somewhat depressed hind angles, the disk carinate, or a little raised in front and channelled behind, and the elytra with about ten rows of closely packed punctures, the alternate interstices being rather more costate than the others.

1. **Plateros seminiger.** (Tab. II. fig. 15, ♀.)

Niger, prothorace elytrisque a basi pone medium aurantiacis; his pube brevi vestitis, lineis quatuor elevatis, intervallis seriebus duplicibus punctorum, sutura basi nigra; illo vitta mediana æqualiter lata nigra, antice indistincte carinato, postice canaliculato. Long. 13–19 millim. ♂ ♀.

Hab. Mexico, Cordova, Santécomapan (*Sallé*).

The thorax narrowed from the base, with acute hind angles, the central black vitta, and suture black at the base, and the brick-red or orange elytra with rather more than the apical third black, render this an easy species to recognize among its congeners. The elytra of this and cognate species are described as having *nine* costate nervures; but they are more correctly crenate striate, with the alternate interstices raised.

This species is known in French collections by the name I have adopted; it is also sometimes called "*micheli*, Petit;" but I cannot find that either name has ever been published. I have only seen it from Mexico as yet.

2. **Plateros bourgeoisi.** (Tab. I. fig. 20 ♀, II. fig. 10 ♂.)

Ater, prothoracis lateribus, disci carinula antica et canaliculo postico, elytrorumque humeris late rubris; his lineis quatuor elevatis, intervallis biareolatis. Long. 8–12 millim. ♂ ♀.

Hab. British Honduras, river Sarstoon (*Blancaneaux*); Guatemala (*Sallé*), Capetillo, Dueñas (*Champion*).

The body and appendages are deep black, except that in some specimens the anterior and middle coxæ, trochanters, and a small pectoral space is pale. The antennæ are broadly but not acutely serrate; and there is no important difference between the sexes. The abdominal structure is normal, the seventh segment in the male being deeply cut out; the apical one in the female bears a very minute notch. The disk of the thorax is black and shining; but the carina and the channel are both yellow, the former well marked; and the disk is slightly rugose on each side of it.

3. **Plateros letourneuri.** (Tab. II. fig. 17.)

Niger, prothorace elytrisque ochraceis, his sutura basi infuscata; illo disco utrinque nigro-vittato, angulis posticis acutis, parum productis. Long. 10–11 millim. ♂ ♀.

Hab. Mexico, Cordova (*Sallé*); British Honduras, river Sarstoon (*Blancaneaux*); Guatemala (*Sallé*).

In one example the crown of the head and the mouth are ochraceous. The sides of the thorax contract slightly from the base; the central yellow line is characteristic; and the alternate interstices are more strongly raised than in the species which are nearly allied.

A Guatemala specimen is shown in the Plate.

4. **Plateros evanidus.**

Niger, prothorace elytrisque ochraceis, his sutura basi, illo vitta mediana nigris, lateribus subsinuatis, angulis posticis acutis, productis. Long. 10–11 millim.

Hab. Mexico, Oaxaca (*Sallé*); Guatemala, Chacoj, Pancina, Teleman (*Champion*); Nicaragua, Chontales (*Belt*); Costa Rica (*Van Patten*).

Closely allied to *P. letourneuri*, and only differing in having the hind angles of the thorax more turned outwards, the elytra evenly striate with the four alternate interstices scarcely more raised, and the carina of the thorax black. The Costa-Rica specimens are darker; and the angles of the thorax in them are less prominent.

5. **Plateros apicalis.**

Niger, prothoracis lateribus, elytrorum dimidio basali, ore, antennarum articulo apicali pedibusque basi interne flavis; elytris interdum linea brevi basali prope suturam nigra. Long. $6\frac{1}{2}$–10 millim.

Hab. Nicaragua, Chontales (*Belt*).

Only two specimens of this species have been sent at present; and they seem very distinct from any other. The apical joint of the antennæ is yellow; the yellow sides of the thorax join in front, leaving a black vitta occupying the disk, in one specimen reaching neither base nor front margin. The sculpture of the thorax is irregular, that of the elytra close, with slightly raised alternate costæ.

6. **Plateros luridus.**

Nigro-fuscus, capite, antennarum articulo apicali, prothorace, elytris, scutello, pedibus basi et pectore ochraceis; elytris punctato-striatis, interstitiis alternis elevatis; vitta thoracica, sutura ad basin vel linea subsuturali interdum nigro-fuscis. Long. 9–10 millim.

Hab. Nicaragua, Chontales (*Belt*); Panama, var.?, Matachin (*Thieme*).

Extremely close to *P. evanidus*, and hardly to be distinguished, except by the antennæ, of which the joints are more acutely serrate, their internal apical angles being produced, and the apical joint yellow. This, however, does not seem to be the case with some specimens lent me by M. R. Oberthür, which have acutely serrate

antennæ and the elytra adorned with obscure dark dashes in the intervals of the costæ.

7. **Plateros lateritius.** (Tab. II. fig. 16, ♀.)

Niger, prothoracis lateribus elytrisque sanguineis; illo basi profunde sulcato, antice carinato; his punctato-striatis, interstitiis parum elevatis. Long. 9–11½ millim. ♂ ♀.

Hab. Mexico, Cordova, Oaxaca (*Sallé*).

Head, antennæ, body, legs, scutellum, and the disk of the thorax black. The elytra and sides of the thorax of a fine brick-red, the former sometimes with the base of the suture black, the latter inclining to orange-red. The antennæ are compressed, serrate, the joints from the third to the tenth a little longer than wide, but decreasing in width towards the apex; the apical joint much narrower than the tenth. The rows of punctures are ten in number, the alternate interstices a little more raised than the others.

According to Sallé's collection this is *Cænia sanguinipennis*, Say. I think, however, that will prove to be a different insect, the present species having nothing to do with the genus *Cænia*.

8. **Plateros bogotensis.** (Tab. II. fig. 18.)

Eros bogotensis, Kirsch, Berl. Zeits. 1865, p. 67[1].

Hab. Guatemala (*Sallé*).—South America, Bogota[1].

A specimen of this species in M. Sallé's collection, since acquired by Messrs. Godman and Salvin, agrees with one which was thus named by M. Bourgeois in my own cabinet.

9. **Plateros thoracicus.**

Nigro-piceus, capite, prothorace (disco excepto), elytrorum vitta humerali cum fascia ad suturam et marginem latiore conjuncta, pedibusque basi flavescentibus; thorace subquadrato, antice prominulo; elytris parallelis, punctato-striatis. Long. 8–9 millim.

Hab. Nicaragua, Chontales (*Belt*, *Janson*); Panama, Matachin (*Thieme*).—South America, Colombia.

Very near to *P. bogotensis*, but apparently distinct, being smaller, with the yellow portions of the elytra frequently more extended, occupying almost the whole base. There is usually a large basal blotch common to both elytra, of a trapezoid form, and with about a third of its apex smoky black. The thorax exhibits an angle on each side in front; the front itself is prominent, but truncate; the carina in front is minutely divided or channelled.

10. **Plateros isthmianus.**

Nigro-fumosus, prothorace elytrorumque humeris, pedibus basi et pectore plus minusve flavescentibus; thorace subquadrato, fronte emarginata basi canaliculata; elytris substriatis, coriaceis, lineis quatuor elevatioribus. Long. 7½–8½ millim. ♂ ♀.

Hab. Guatemala, Zapote (*Champion*); Panama, Matachin (*Thieme*).

Not only differs from *P. thoracicus* by the absence of the fascia, but is also slightly more parallel; the front of the thorax is often emarginate, sometimes with a small notch; the carina is very obsolete, scarcely ever to be traced, and, when present, not divided.

There is a fine series in M. R. Oberthür's collection. I have only seen one from Guatemala.

11. **Plateros terminalis.**

Nigro-fumosus, subparallelus, opacus, prothoracis lateribus, striga humerali, et antennarum apice flavis, elytris punctato-striatis. Long. $6\frac{1}{2}$ millim.

Hab. Guatemala, San Juan, Vera Paz (*Champion*); Nicaragua, Chontales (*Belt*).

Only three specimens have come under my notice of this very distinct insect. The head, antennæ, legs, and body are black, with the exception of from one to three joints at the apex of the antennæ (the number seems variable): the antennæ are serrate, the width of each joint increasing towards the middle. The thorax has the disk black from base to front, the carina visible, the basal channel short; the front is rounded, the sides are sinuate, the base notched. The elytra are evenly and strongly crenate-striate.

12. **Plateros parallelus.** (Tab. II. fig. 19.)

Niger, nitidus, elongatus, parallelus, prothoracis marginibus lateralibus et frontali rufo-testaceis, basi in medio elevata et excisa; elytris coriaceis, substriatis. Long. 6–9 millim. ♂ ♀.

Hab. Mexico, Cordova, Oaxaca (*Sallé*); British Honduras, Rio Hondo (*Blancaneaux*); Guatemala, San Gerónimo, Zapote (*Champion*); Nicaragua, Chontales (*Janson*).

The elongate parallel form of this insect will cause it to be recognized. The antennæ have the second small joint yellow, and the basal one tinged with yellow and pitchy. The elevated and notched centre of the basal margin is a character which obtains in other species of the genus, as *P. isthmianus*, but in a less degree. The Zapote examples are usually smaller and have yellow shoulder-stripes; but they agree too nearly with those from San Gerónimo for me to attempt their separation. It is, moreover, one of the latter variety that M. Bourgeois has returned to me with the name here adopted.

13. **Plateros striatus.**

Niger, prothoracis lateribus rufis, elytris crenato-striatis. Long. $5\frac{1}{2}$–6 millim.

Hab. Mexico, Juquila (*Sallé*); Guatemala, Capetillo, Dueñas (*Champion*).

Var. Elytris linea minuta humerali rufa. (*P. marginellus*, Macleay.)

Hab. Guatemala, Zapote (*Champion*); Panama, Matachin (*Thieme*).

Antennæ serrate, the joints narrowing towards the apex. Head black, with rather prominent eyes. Thorax round in front; hind angles acute, produced; base divided in the centre, but not much elevated, nor truncate as in *P. parallelus*. Elytra gradually widening towards their apex, strongly crenate-striate, with a greyish look; the striæ with distinct punctures.

Among many Lycidæ obtained by me from the late Mr. Norris's collection were two or three of the variety with a humeral stripe of this species; these were named for me by M. Bourgeois "*P. marginellus*, Macleay." It would be impossible from the description alone to identify it with the Fabrician *Lycus marginellus*, which, indeed, would apply equally to other small species of other genera. There are at least four species of *Calopteron* so closely resembling this as to require careful study for their separation.

14. **Plateros flavicollis.**

Niger, prothorace, femoribus intermediis et posticis basi, scutello, humeris et sutura juxta scutellum flavescentibus. Long. 5–5½ millim.

Hab. GUATEMALA, Zapote (*Champion*).

It is with some hesitation I give this specific rank; but even if it be only a variety of *P. striatus*, it is necessary to notice it.

15. **Plateros nicaraguensis.**

Niger, oblongus, parallelus; prothorace transverso, antice angustato, lateribus sinuatis, angulis posticis acutis, productis, ochraceo, vitta lata in medio nigra; elytris ochraceis, apice nigris, interstitiis alternis elevatioribus; antennarum articulo primo et ore rufo-piceis. Long. 10 millim. ♀.

Hab. NICARAGUA, Chontales (*Belt*).

The form of this insect is not that of any of the species hitherto described. The antennæ are compressed and narrow towards the apex; they are scarcely serrate. The prothorax is rather trapezoidal, with the base sinuate, much wider than the front, not notched in the middle; the front and the sides form an obtuse angle, the former being a little produced over the head; the basal channel is well defined, but the carina hardly traceable. The elytra are rather wide and flattish, with the usual ten series of punctures, which are, however, scarcely visible, owing to the fine yellow pubescence with which they are covered. The apical segment of the abdomen appears not to be divided in the middle.

Only a single specimen was sent by Mr. Belt.

16. **Plateros ochraceus.**

Niger, prothorace elytrisque ochraceis, his striga subsuturali juxta scutellum nigra, illo transverso, antice angustato, basi canaliculato, utrinque subtuberculato, disco plus minusve nigro, canaliculo tamen flavo, angulis posticis acutis productis. Long. 7–9 millim.

Hab. GUATEMALA, Cubilguitz (*Champion*).

At first sight this is very similar to *P. letourneuri*. The following points of difference indicate, I believe, specific rank:—The thorax is shorter and has a less even surface; it is not so evenly rounded in front; the head is reddish between the eyes; and the antennæ are longer; the scutellum is red, and the suture itself not black at the base; but there is a short black streak on each side of it from the scutellum; the elytra are more convex, and their alternate interstices not raised, excepting the humeral and discoidal ones at the base. In some specimens the thorax exhibits transverse oblique rugosities, one of which forms a sulcus united with the channel of the disk near the base.

17. **Plateros rubricatus.**

Ochraceo-rufus, antennis, palpis, abdomine pedibusque (basi excepta) nigris, elytris interstitiis alternis elevatioribus. Long. 10 millim.

Hab. GUATEMALA, Chacoj, La Tinta, Pancina (*Champion*).

This species is also a very close ally of *P. letourneuri*, and is, indeed, still nearer to it in form than is *P. ochraceus*. It is, however, clearly a distinct species. The head, thorax, and scutellum are entirely of the brick-red colour of the thorax; and the whole of the sterna, with the coxæ, trochanters, base of the femora, and even the first segment of the abdomen are also red. The thorax, moreover, is not so even as in *letourneuri*; it exhibits six depressions in addition to the basal channel—two on each side, and one on each side of the channel, somewhat suggesting an approach to a true *Eros*.

18. **Plateros mexicanus.**

Nigro-fumosus, prothoracis margine laterali et frontali elytrorumque humeris ochraceo-rubris vel roseis; elytris punctato-striatis, interstitiis alternis elevatioribus. Long. $6\frac{1}{2}$–8 millim. ♂ ♀.

Hab. MEXICO, Cordova (*Sallé*, *Höge*).

This species belongs to the first division of the genus, in which the elytra are moderately widened behind. The only species yet described which it resembles is *P. bourgeoisi*. It is scarcely more than half the size of that species; the elytra are not so black, and the red portions are more nearly pink; the disk is black, but never reaching the front margin, nor is there any central red line. The thoracic channel is open behind, and the base elevated, but not strongly in the middle. The antennæ are more pubescent than in *P. bourgeoisi*; and the head is sometimes reddish above the mandibles, which are red.

19. **Plateros roseicollis.**

Niger, prothorace elytrorumque humeris tenuiter roseis, his interstitiis alternis modice elevatis. Long. 8–10 millim. ♀.

Hab. MEXICO, Jacale (*Sallé*).

Easily distinguished from *P. mexicanus*, which it otherwise rather closely resembles, by its quite red thorax. The red shoulder-stripe extends a little way down the humeral costa; but the margins of the elytra are black to close to the base; the alternate interstices are more sharply raised, in which respect this species rather resembles *P. bourgeoisi*. From that species the much shorter thorax, as well as its rosy-red colour, separates it.

There are four female specimens in M. Sallé's collection.

20. **Plateros patiens.**

Niger, prothorace elytrorumque dimidio basali testaceis, his interstitiis alternis regulariter elevatioribus, illo margine basali paulo elevato et exciso; antennis serratis; femoribus basi flavis. Long. 9 millim.

Hab. GUATEMALA, Zapote (*Champion*).

A species very much resembling *P. apicalis*, from which it may be distinguished by the apical joint of the antennæ being *black*, the thorax quite unicolorous, yellow, with the base elevated in the middle, so as to form a short double carina, on each side of the central channel. The scutellum is *yellow*; the yellow of the elytra continues along the margin further than at the suture. Only a single specimen appears to me to belong to this species.

21. **Plateros stramineus.**

Pallide testaceus, corpore, antennis pedibusque nigris, his basi testaceis, thoracis disco interdum fusco, breviter canaliculato, basi sinuata, integra, angulis posticis acutis, productis. Long. $5\frac{1}{2}$–6 millim. ♂ ♀.

Hab. GUATEMALA, San Gerónimo, San Juan (*Champion*).

One of the smallest *Platerotes*, about the size of *P. striatus*, but readily distinguished by its yellow colour above. The elytra are very evenly striate, without elevated lines. The disk of the thorax is either marked with pitchy or is of the same colour as the rest of the upper surface. The central channel is wide, but vanishes in front and behind.

Three specimens, collected by Mr. Champion.

CALLEROS.

Genus *Plateroti* affine, antennis gracilioribus, prothorace plerumque angustiore quam elytra, sulco basin vix attingente, et angulis posticis minus acute productis, mox distinguendum.

Caput haud rostratum, oculis sat magnis, antennis subfiliformibus, vix serratis, parum compressis. Prothorax elytris plerumque basi angustior, disco inæquali ad basin canaliculato vel fossulato, angulis posticis subrectis vel muticis, margine basali integro. Scutellum apice fissum. Elytra postice paulo ampliata vel parallela, regulariter substriata, intervallis subtiliter rugosis vel crenulatis, pubescentia, interstitiis alternis vix vel haud elevatioribus. Abdominis segmentum penultimum maris ventrale emarginatum, dorsale oblique truncatum; feminæ ventrale conicum, apice fissum.

A genus proposed to receive some small Lycidæ which are allied to *Plateros*, but differ considerably both in general appearance and, especially, in the long thin antennæ. They are species of moderate size, with brightly coloured red thoraces and elytra, sometimes purplish or cochineal. I have taken the first species described below

(*C. puniceus*) as my type; the genus, however, will include *Eros phœnicurus* of Kirsch (Berl. Zeit. 1865, p. 68), a species which is found in Colombia.

1. Calleros puniceus.

Niger, prothorace elytrisque læte rufis (puniceis), his retrorsum modice expansis, striatis, illo disco infuscato, leviter canaliculato et foveolato, antice obsolete punctato; scutello nigro; antennis subfiliformibus, dimidium corporis superantibus. Long. 8–9 millim. ♂ ♀.

Hab. GUATEMALA, Tactic (*Champion*).

The head, body, antennæ, and legs are black; the mouth a little pale. The elytra are of a bright velvety-looking crimson-red; the thorax a little more of a brick-red, with its disk blackish in parts. The elytra are very evenly striate. The sexes do not exhibit any difference in form or length of the antennæ, or in the structure of their joints. This is perhaps the most vividly coloured of the family which I have seen from Central America.

2. Calleros rufobrunneus.

Niger, prothorace rufo, angulis posticis subrotundatis; elytris rufo-brunneis, velutinis, intervallis alternis elevatioribus, præsertim prope humeros, retrorsum modice expansis. Long. 7–9 millim. ♂ ♀.

Hab. GUATEMALA, Sinanja valley, Cubilguitz (*Champion*).

Very closely allied to *C. puniceus*; it is, however, differently coloured, being of a rich reddish brown, with brighter pubescence. The antennæ of the male are as long as the body, and have the third joint much longer than in the female, in which the same joint is obconic, not much longer than the second, and the whole antenna half the length of the body. The angles of the thorax of the male are acute and a little produced; those of the female are blunt and round. The scutellum is of the brownish-red colour of the elytra.

3. Calleros militaris.

Niger, elytris sanguineis velutinis, obsoletius striatis; scutello nigro; prothoracis disco antice indistincte carinato, postice leviter canaliculato ac foveolato, angulis posticis subrectis; antennis subcompressis, vix serratis. Long. $7\frac{1}{2}$–9 millim.

Hab. GUATEMALA, Sinanja valley (*Champion*).

Only two specimens of this have come under my notice. It is very easily recognized by the black thorax and rich red elytra; the former has the hind angles in one specimen very narrowly edged with yellowish. The elytra are moderately expanded towards their apex.

4. Calleros sinanjæ.

Niger, parallelus, prothorace sanguineo, nitido, postice foveolato, scutello nigro; elytris basi brunneis, apicem versus infuscatis, distincte striatis, interstitiis alternis leviter elevatioribus; antennarum articulo ultimo brunneo. Long. $6\frac{1}{2}$–7 millim. ♀.

Hab. GUATEMALA, Sinanja valley (*Champion*).

This so far differs from the three preceding species as to give rise to reasonable doubts whether it should really be associated with them. It agrees, however, in having very slightly compressed hardly serrate antennæ. The prothorax has acute hind angles, they are a little produced backwards; it is as long as wide, round in front, with parallel sides. In one specimen the scutellum is brown.

CALOLYCUS.

Genus *Plateroti* affine, thorace latiore lateribus explanatis reflexis, elytrisque magis ampliatis, ovalibus, differt. Caput haud rostratum, antennis utroque sexu subfiliformibus, compressis, apicem versus attenuatis. Thorax maris transversim subquadratus; feminæ latior, lunaris, angulis posticis productis acutis; antice carinatus, postice canaliculatus. Elytra areolarum seriebus novem, interstitiis quarto et octavo costatis.

The form of the prothorax and of the elytra are the principal characters which separate this genus from *Plateros*,—the former being expanded, especially in the female, at the sides, so as to remind one of *Lycostomus*; the latter being oval, as in *Cœnia*.

I have not at present seen any other species than the one now described, which I should associate with it.

1. **Calolycus calanticatus.** Tab. IV. fig. 3.)

Niger, opacus; prothorace roseo, medio nigro-vittato, transverso, angulis posticis acutis, disco antice leviter carinato, postice canaliculato basi integro; elytris ovatis ampliatis, humeris costatis, striga minuta rufa ornatis. Long. 8–10 millim. ♂ ♀.

Hab. Mexico, Cordova (*Sallé*).

The head, antennæ, legs, and body are entirely black. The thorax wide, with the hind angles produced backwards; the front rounded, not prominent, the base sinuate and not notched in the centre, but with a reflexed margin a little more raised there; the central vitta is widest at the base, not very distinct in one specimen (male), in another (female) distinct, and in front only as wide as the carina. The elytra have ten rows of squarish areolæ, not very deep; the humeral callus strongly raised and continued as a costate interstice to near the apex. The portion of the elytron external to this is widened much as in *Cœnia*, and contains two rows of cells; the margin itself is thickened a little.

This is a very elegant insect, the black elytra contrasting strongly with the red thorax. It cannot be well placed in the genus *Plateros*, while it differs from *Eros*, which has the thorax divided into seven areolæ, in having its disk sculptured as in the former of those genera.

CALODADON.

Caput haud rostratum; oculi magni prominentes; antennæ corpore breviores, longe flabellatæ (fœminæ serratæ). Palpi maxillares articulo ultimo subsecuriformi, obliquiter truncato. Pronotum pileiforme, disco antice carinato, in medio usque ad basin, carina duplici inter se sulcum angustum formante, basi medio prominente, haud exciso. Elytra seriebus punctorum decem, interstitiis alternis elevatioribus. Pedes longi, femoribus et tibiis compressis et sulcatis. Abdominis segmentum apicale ventrali, maris acuminatum, penultimum rotundato-emarginatum; fœminæ ventrali apicale rotundatum, haud fissum aut excisum.

A new genus is necessary for the reception of four species of Lycidæ from Central America. They are allied to *Plateros* by the sculpture of the elytra, and to the *Caloptera* of Section A iii. by their beautifully flabellate antennæ. But the sculpture of the thorax, consisting of a neat central groove not reaching the hind margin, with carinate edges, a frontal carina, and its head with large round prominent eyes remove it from either. The species are of moderate size only. *Calopteron lætum*, Kirsch (Berl. ent. Zeit. 1865, p. 43), is referable to this genus. M. Bourgeois has referred it to *Emplectus*, Er. (Wiegm. Arch. 1847, p. 82); but Mr. C. Waterhouse says the type of Erichson's genus has simple antennæ. *Cladocerus* of Kirsch has biflabellate antennæ.

1. **Calodadon testaceum.** (Tab. II. fig. 20, ♂.)

Testaceum, antennis, palpis basi excepta, femoribus apice, tibiis, tarsis, abdomineque nigris; prothorace elongato, basi sinuata angulis posticis acutis, antice rotundato, lateribus a basi angustatis; disco antice carinato, carina postice divisa. Long. 8–9 milim. ♂ ♀.

Mas antennarum articulis 3°–10° longe flabellatis.

Femina antennis acute serratis.

Hab. GUATEMALA, San Gerónimo, Zapote (*Champion*, ♀); NICARAGUA, Chontales (*Belt*, *Janson*, ♂).

The figure represents one of the largest male specimens from Chontales.

The head is yellow; but the eyes are so large as to occupy a large portion of it. The antennæ are entirely fuscous-black. The thorax narrows considerably from the base to the front, which shows a slight angle where the rounded part meets the sides. The elytra have four neatly raised lines, the intervals of which have double rows of small areolets or punctures; these are square, but are partly hidden by the fine squamosity which covers them.

The Guatemala specimens are rather doubtfully the female of the same species. The thorax is shorter and smaller, and the abdomen yellow.

2. **Calodadon oculatum.**

Nigrum, prothorace (vitta mediana excepta) elytrisque ochraceis, his apicali triente nigro, sutura etiam basi nonunquam nigra. Long. 9 millim. ♂ ♀.

Mas oculis magnis, antennis longe flabellatis.

Femina oculis mediocribus, antennis acute serratis.

Hab. GUATEMALA, Teleman, Chacoj (*Champion*); NICARAGUA, Chontales (*Belt*).

In form and sculpture much resembling *C. testaceum*, this species is amply distinguished by its colour. The antennæ of the male have their joints above the second (which in this genus is very short) much longer than wide, as in *C. testaceum*; but the corresponding joints of the female are widely triangular, being, to the acute internal angle, wider than long.

3. **Calodadon fusculum.**

Piceum, prothoracis margine antico et laterali femoribusque basi pallide testaceis, elytris fuscis basi dilutioribus, thoracis disco canaliculato et foveola postice impressa. Long. 8 millim. ♂.

Mas oculis magnis, antennis longe flabellatis.

Hab. NICARAGUA, Chontales (*Belt*).

The thorax of this species is shorter and more nearly semicircular than that of *C. testaceum*; and the disk is not carinate in front; it has a rather obsolete channel, terminating in a fovea near the base. The eyes, antennæ, and elytra, however, so completely agree with those of the males of the two preceding, that I feel no hesitation in associating it with them. The description is from a single male specimen sent by the late Mr. Belt.

4. **Calodadon pectinicornis.**

Nigrum, prothorace (elytrorum basi latitudine æquali) vitta mediana excepta ferrugineo, elytris ferrugineis, apice late nigris, versus apicem paulo latioribus, lineis duabus elevatis; thoracis disco antice carinato, medio elevato ac canaliculato, basi in medio elevata haud excisa. Long. 10–11 millim. ♂ ♀.

Mas antennis longe flabellatis.

Femina antennis compressis, acute serratis.

Hab. NICARAGUA, Chontales (*Belt*).

This species almost exactly resembles *Calopteron pectinatum* in size, form, and colour, but is at once separated by the channelled thorax, and the number of series of punctures of the elytra. The thorax is wider but of similar sculpture to that of *C. testaceum*. The eyes of the males are only of ordinary bulk; and the elytra are flatter than in my typical species. I am not able, however, to point out any other genus into which it could be so well introduced.

Fam. **LAMPYRIDÆ.**

Subfam. *LUCIDOTIDES.*

This family comprises the Glow-worms of the temperate, and the greater part of the Fire-flies of tropical latitudes. It is in Central and South America that these beetles attain their highest development, both in size and number of species. The subfamily includes the genera with plumose or dentate antennæ; and these are, with one exception (viz. the genus *Vesta*, which is found in India and Java), peculiar to Tropical America, a few species only of *Lucidota* extending into Temperate America and Eastern Asia.

LAMPROCERA.

Lamprocera, Castelnau, Ann. Soc. Ent. Fr. ii. p. 129 (1833).

This fine genus appears almost confined to the tropical parts of the southern continent

of America. The males have wide lamellæ springing from each side of the joints of the antennæ at their apices: in the typical species (*L. latreillei*) these are equal; but in other species they are much shorter on the side which is outermost when the antenna is extended. The males only are luminous.

One species has been found north of the isthmus.

1. **Lamprocera picta.** (Tab. III. fig. 1, ♂.)

Lamprocera picta, Gorh. Trans. Ent. Soc. 1880, p. 5 [1].

Hab. NICARAGUA, Chontales (*Belt* [1]); GUATEMALA, Teleman (*Champion*).

The figure is that of a male from Nicaragua.

HYAS.

Hyas, Castelnau, Ann. Soc. Ent. Fr. ii. p. 134 (1833).

The species composing this genus retain the wide shield-like shape of *Lamprocera*; but the lamellæ are only developed on one side of the antennæ, and the species are smaller. Important distinctions exist in the structure of the abdomen, which are noticed in the Transactions of the Entomological Society for 1880, part i.

The species seem evenly distributed in Tropical America. Four species are given in the Munich Catalogue, which probably are only varieties of two; but there are some undescribed in collections. Four species have been recently sent from our district.

1. **Hyas rhomboidea.** (Tab. III. fig. 2, ♂.)

Hyas rhomboidea, Gorh. Trans. Ent. Soc. 1880, p. 6.

Hab. NICARAGUA, Chontales (*Belt*).

The single specimen of this species at present received is a male; it is more parallel in form than the other known species.

2. **Hyas angularis.**

Hyas angularis, Gorh. Trans. Ent. Soc. 1880, p. 7, t. i. f. 19 [1].

Hab. MEXICO [1], Cordova, Playa Vicente (*Sallé*); GUATEMALA, San Gerónimo, Calderas (*Champion*). ♂ ♀.

Some of the specimens differ from the type in not having black angles to the thorax; the other specimens quite accord with it, the antennæ, however, are entirely black, acutely serrate in the ♂. In the male the pygidium and apical segment are pale, the latter deeply excised and forming an opening. The female has the apical ventral plate pale alone, and has the thorax longer and with the sides therefore less oblique.

3. **Hyas lugubris.**

Ovalis, depressa, aterrima, opaca, scutello thoracisque disco nitidis, hoc carinato, utrinque plagis duabus fulvis marginem anticum vix attingentibus. Long. 9–11 millim. ♂.

Hab. Guatemala, Sabo, Senahu (*Champion*).

Differs from *H. angularis* chiefly by its much smaller size, narrower, more elongate form, and the greater extent of black upon the thorax. The antennæ are acutely serrate. The apical segment in one specimen has a small ochreous spot on each side, which, I conclude, is the luminous part. The pygidium is fuscous, nearly black.

4. **Hyas semifusca.**

Late ovalis, depressa, fusca, subopaca; prothorace, pectore, scutello, pedibus anticis et intermediis (tibiis tarsisque exceptis), coxis posterioribus, elytris ad basin indeterminate abdominisque apice fulvis; thoracis disco carinato, margine antico reflexo; antennis acute serratis, articulis duobus basi flavis. Long. 12 millim. ♂.

Hab. Guatemala, Zapote (*Champion*).

A single specimen of this distinct species is all that I have seen; and I think it is a male. The antennæ are rather more than half as long as the whole insect, if the prothorax is included; they are simply serrate, without any tendency to pectination; and this is so in the males of other Central-American species of *Hyas*.

CLADODES.

Cladodes, Blanchard in Gay's Hist. Chili, Zool. iv. p. 444 (1849).

This genus was only known from South America. Mr. E. Janson, however, has found one species in Nicaragua. It appears as if the females were unknown; all the specimens I have examined have the normal structure of males of this family. They are rare in collections; and it is probable that the females are not only rarer, but more sluggish, than the males.

1. **Cladodes plumosa.** (Tab. III. fig. 21.)

Cladodes plumosa, Gorham, Trans. Ent. Soc. 1880, p. 9.

Hab. Nicaragua, Chontales (*Janson*, *Belt*).

PHÆNOLIS.

Phænolis, Gorham, Trans. Ent. Soc. 1880, p. 10.

This genus was designed to receive three species from Central Ameria which differ from *Cladodes* in having the antennæ with lamellæ on each side, nearly equal in length. All the specimens I have seen appear to be males, the specimen of *P. ochraceus* referred to in my description as possibly a female being very doubtfully assignable to that sex.

1. **Phænolis laciniatus.** (Tab. III. fig. 22, ♂.)

Phænolis laciniatus, Gorh. Trans. Ent. Soc. 1880, p. 10.

Hab. Nicaragua, Chontales (*Belt*); Costa Rica (*Rogers*).

2. **Phænolis ustulatus.**

Phænolis ustulatus (Chevr.), Gorh. Trans. Ent. Soc. 1880, p. 11 [1].

Hab. Mexico [1], Cordova (*Sallé*); Guatemala, Zapote [1], Purula, Senahu, Cubilguitz (*Champion*); Costa Rica, Caché (*Rogers*).

3. **Phænolis ochraceus.**

Phænolis ochraceus, Gorh. loc. cit. p. 11 [1].

Hab. Guatemala, Vera Paz (*Champion*); Nicaragua, Chontales (*Belt* [1]). ♂ ♀ ?

4. **Phænolis nigricollis.**

Niger, opacus, elytris basi ultra medium pallide testaceis, pube brevi dense vestitis. Long. 15 millim. ♂?

Hab. Mexico, Tepansacualco, Oaxaca (*Sallé*).

This highly interesting species scarcely differs in form from *P. ustulatus*. The thorax is transverse, constricted at the base, a little less produced in front. The expanded sides form a nearly straight channel with the disk, where they commence to be reflexed. The scutellum is black and opaque. The elytra are of a very pale yellow for rather more than half their length at the base; and this colour extends a little way down the suture. Three or four nervures are just visible, but only indistinctly so. The apical ventral segment is cleft and bilobed, the pygidial plate broadly bisinuate.

A single specimen only has come under my notice.

ÆTHRA.

Æthra, Castelnau, Ann. Soc. Ent. Fr. ii. p. 133 (1833).

Neither the limits of distribution nor approximate number of species in this section are yet well ascertained. The typical species are Brazilian, and are distinguished by the great length of the lamellæ of the antennæ, which sometimes equal half their whole length. In the Central-American species, on the contrary, the antennæ are scarcely pectinate; yet the general construction is the same; and they more nearly resemble the species of the Eastern genus *Vesta*. But one sex (♂?) is known to me.

1. **Æthra despecta.** (Tab. III. fig. 3.)

Æthra despecta, Gorh. Trans. Ent. Soc. 1880, p. 12 [1].

Hab. Nicaragua, Chontales (*Belt* [1]); Costa Rica, Caché (*Rogers*).—Colombia [1].

The Central-American specimens agree in not having the disk of the thorax infuscate.

2. **Æthra concolor.**

Æthra concolor, Gorh. loc. cit.

Hab. Costa Rica, Volcan de Irazu (*Rogers*).

DRILOLAMPADIUS, g. n.

Æthræ affinis, antennis autem serie duplici ramorum pectinatis sat distinctus. Caput prothorace valde receptum. Oculi maris sat magni. Antennæ 11-articulatæ, articulo primo ad apicem robusto, secundo perbrevi, tertio ad decimum sequentibus subæqualibus; basi ramo vel filamento pilifero duplici munita. Prothorax semicircularis vel antice paululum angustatus, plerumque canaliculatus. Elytra subcostata. Abdomen haud lobatum, maris segmentibus octo, septimo emarginato.

There are not many genera of Lampyridæ with bipectinate or biflabellate antennæ; and it is necessary to found a new genus for the reception of a few species which differ from all other species known to me, in having the antennæ with eleven joints, and the third to the tenth joints with branches equal in length and filamentary. The general form is that of the small species of *Æthra*; the species very closely resemble Lycidæ from the same district. Three species are known to me—two from Central America, one from Colombia, at present undescribed.

1. **Drilolampadius stolatus.** (Tab. III. fig. 20.)

Niger, prothoracis lateribus late, elytrorum margine humerali tenuiter flavis; elytris sutura costisque duabus paulo elevatis, ad apicem evanescentibus. Long. 6–7 millim. ♂.

Var. Elytris plaga latiore humerali et sutura basin versus flavis.

Hab. British Honduras, Belize (*Blancaneaux*); Guatemala, Zapote, Chiacam (*Champion*). Var. Guatemala, Senahu, San Juan (*Champion*); Nicaragua, Chontales (*Belt*).

The specimen figured is from Zapote.

Prothorax transversely lunate, narrowed from the acute hind angles to the front, with large irregular punctures, the disk tumid, uneven, deeply channelled in the middle. Elytra subopaque, coarsely, confluently punctate, with two distinct, and externally a third abbreviated costa. Those specimens in which the bases of the elytra are more yellow appear more distinctly costate; but I do not see sufficient ground for separating them. The fifth and sixth segments of the abdomen beneath show a small diaphanous spot.

Obs. The figure in our Plate shows nine branches on each side of the antenna. I am satisfied that there really exist but eight, the eleventh or terminal joint being simple.

2. **Drilolampadius scutellaris.**

Niger, prothorace (disco excepto) elytrisque (plaga brevi subscutellari nigra) ferrugineis. Long. 7–8½ millim.

Hab. Guatemala, Cubilguitz (*Champion*); Costa Rica, Caché (*Rogers*).

Rather larger than *D. stolatus*, and with the thorax not so decidedly narrowed in front, but transversely lunate. The disk is black; but this colour does not extend to the front; the suture and two costæ are moderately raised; the scutellum is black, except at its apex; and the elytra have a short black streak at the base. The body beneath

and legs are black; only the fifth segment has a small white spot; and even this is apparent in one alone of the three specimens which have been sent.

MEGALOPHTHALMUS.

Megalophthalmus, Gray, Griffith's An. Kingd. Ins. i. p. 371 (1832).

The separation of this genus from others with strongly pectinate antennæ, small eyes, and with a very small portion of the abdomen luminous, on the ground of the head being scarcely covered by the very short pronotum, is unnatural. In the Central-American species even this character is not maintained.

The females of this genus seem unknown, so that its position is still provisional; but I think that it is best placed in this subfamily.

Four species of *Megalophthalmus* have been described from South America. The genus is also said, but incorrectly, to be found in Chili.

1. **Megalophthalmus guatemalæ.**

Megalophthalmus guatemalæ, Gorh. Trans. Ent. Soc. 1880, p. 98[1].

Hab. Mexico, Cordova (*Sallé*); Guatemala, Zapote (*Champion*[1]).

2. **Megalophthalmus godmani.**

Niger, prothorace, coxis et femoribus intermediis basi elytrisque ferrugineis, abdominis segmento quinto (maris?) apice albo; elytris tricostatis; antennis late pectinatis. Long. 8–9 millim. ♂?

Hab. Guatemala, Cubilguitz (*Champion*).

Rather larger than *M. guatemalæ*, and with the antennæ a little more widely pectinate, but otherwise resembling it in form. The second and third costæ are not so evidently united at the apex; and the apical branch is only just visible.

LUCIDOTA.

Lucidota, Castelnau, Ann. Soc. Ent. Fr. ii. p. 136 (1833).

This genus is not well defined at present; two types of species are included in it, as will be seen by reference to my figures of the ventral apical segments of the males (Trans. Ent. Soc. 1880, pl. i. figs. 8, 10, 11). The first division consists of species, often of large size, from Tropical South America. The second division are more moderate in size; but both agree in having the antennæ pectinate or serrate, often long, the prothorax usually short and its disk channelled, and the abdomen not lobed.

Lucidota is distributed in America from Chili to the United States, and is even represented in Japan.

1. **Lucidota silphoides.**

Lucidota silphoides, Gorh. Trans. Ent. Soc. 1880, p. 18[1].

Hab. British Honduras, river Sarstoon (*Blancaneaux*[1]); Guatemala (*Sallé*).

The specimen described is a female, and, with the exception of one in Sallé's collection (which has lost the abdomen and has the filamentary pectination abraded from the antennæ), is all I have yet seen of this species. The pectination is *double*, a pair of short rami springing from each side of the base of the third to the tenth one. It is therefore not improbable that this species may have to be referred to *Drilolampadius*.

2. **Lucidota bella.** (Tab. III. fig. 4.)

Lucidota bella, Gorh. loc. cit.[1]

Hab. Mexico, Cordova, Tuxtla, Teapa; Guatemala, Zapote[1], San Gerónimo, Cubulco, San Juan, Senahu (*Champion*); Honduras (*Sallé*); Nicaragua, Chontales (*Belt*).

The specimen figured is one from Zapote.

In M. Sallé's collection this species is named "*thoracica*, Oliv." It is true that *Photinus thoracicus*, Oliv. (Ent. ii. p. 27, t. 3. f. 29), is probably a *Lucidota*; I have, however, no reason at present for thinking it to be identical with this species, and have not as yet seen *L. bella* from South America.

3. **Lucidota rubricollis.**

Lucidota rubricollis, Gorh. tom. cit. p. 19[1].

Hab. Mexico, Playa Vicente (*Sallé*); Guatemala, La Tinta (*Champion*); Nicaragua, Chontales[1] (*Janson*, *Belt*).

4. **Lucidota apicicornis.**

Lucidota apicicornis, Gorh. tom. cit. p. 20.

Hab. Nicaragua, Chontales (*Belt*).

Species of *Lucidota*, *Photinus*, and *Photuris* are so frequently similarly coloured as to suggest that mimicry has affected them, as well as that it explains the singular resemblances of many species of this tribe to those of Lycidæ, Telephoridæ, Cleridæ, Longicornia, Hispidæ, &c., and even to insects of other orders, as Blattidæ. This species is superficially very like *Photuris lucidicollis*, Gorh. The much longer compressed antennæ with white apical joints may serve for a ready distinction.

5. **Lucidota osculatii.**

Lucidota osculatii, Guérin, Wiener Verz. v. 1855, p. 580[1]; Gorh. Trans. Ent. Soc. 1880, p. 20[2].

Hab. Nicaragua, Chontales[2] (*Belt*, *Janson*).—South America, Colombia[1].

The type of coloration of this species (bone-yellow, with elytra and disk of the thorax pitchy, with yellow margins) is very common throughout the Lampyridæ. There are both *Photini* and *Photurides* very closely like this species; and the study of the generic characters is necessary to avoid their being confused. *L. osculatii* has long compressed antennæ with serrate joints.

6. **Lucidota limbata.**

Lucidota limbata, Gorh. Trans. Ent. Soc. 1880, p. 20.

Hab. NICARAGUA, Chontales (*Belt*).

7. **Lucidota apicalis.** (Tab. III. fig. 5.)

Lucidota apicalis, Gorh. tom. cit. p. 19, t. i. f. 10[1].

Hab. COSTA RICA, Volcan de Irazu (*Rogers*). ♂.

This is like *L. apicicornis* in having white apical joints to the antennæ; but the elytra are wholly black, and the thorax whitish and immaculate. The lengthened pygidial plate [1] may indicate a section of the genus of which it will form the type.

8. **Lucidota diaphanura.** (Tab. IV. fig. 22.)

Nigro-fumosa, obscura, elytris opacis, prothorace subnitido, disco obsolete canaliculato, utrinque miniato, lateribus albidis, extus subinfuscatis; antennis compressis, haud serratis, corporis dimidio longitudine æqualibus. Long. 12–15 millim. ♂ ♀.

Mas abdominis segmentis quinto et sexto ventralibus ad apices, septimo toto et pygidio albis; hoc latiore, convexo, superne carinato, diaphano.

Femina pygidio angustiore, apice rotundato albo, basi infuscata; segmento ventrali apicali apice triangulariter exciso, et (cum penultimi margine) albo.

Hab. MEXICO, Cordova (*Sallé*).

A species of *Lucidota* somewhat resembling and allied to *L. atra*, but larger than that species, and at once to be separated by the white apical segments of the abdomen. The thorax varies a little in the proportion of its width; and this is in reference to the size of the specimens and not to their sex, the larger individuals having the thorax more fully developed. The sides narrow in a sinuous manner towards the front, which is rather prominent. The disk has a pitchy-black vitta from base to apex. The elytra show very indistinct traces of one or two nervures. The head, mouth, palpi, antennæ, legs, and underside are entirely pitchy black, with the exception of the apical segments. In the majority of the males before me the genital or eighth segment is not visible; the seventh is broad, but not equal in width to the pygidium. In two other males separated in M. Sallé's collection the genital plate is visible as usual; the antennæ are longer, they have the basal joint fuscous. But I do not think they belong to a different species.

9. **Lucidota atra.**

Lucidota atra, Olivier, Ent. ii. p. 28, t. 3. f. 28; Fabr. Ent. Syst. i. 2, p. 101.
Lampyris laticornis, Fabr. tom. cit. p. 99; Cast. Hist. Nat. i. p. 268.

Hab. North America, United States.—Nicaragua, Chontales (*Belt*).

I have only seen two specimens, from Chontales, which I think referable to this species.

10. **Lucidota discolor.** (Tab. III. fig. 6, ♀.)

Rufo-ferruginea; antennis, palpis, tibiis, tarsis, abdomine (apice excepto) elytrorumque dimidio apicali nigris; thorace transverso, disco foveolato, elytris nervulis tribus parum distinctis. Long. 12–15 millim. ♂ ♀.
Mas segmento ventrali apicali, apice producto, genitale superante, rufo.
Femina latior, segmentis quinto et sexto ventralibus puncto rufo, apicali acute exciso.

Hab. Mexico, Playa Vicente, Cordova, Santecomapan (*Sallé*); British Honduras, Rio Hondo (*Blancaneaux*); Guatemala, Vera Paz, San Juan, Chacoj, Senahu (*Champion*, ♂); Nicaragua, Chontales (*Belt*, *Janson*).—South America, Colombia.

Head small, received into the thorax, rufous or pitchy; antennæ two thirds as long as the body, a little compressed but scarcely serrate; breast and femora rufous—the latter, especially the posterior pair, tinged with black at their apex. Abdomen black, with the exception of the apical segment in the male and two punctiform spots on the fifth and sixth plates in the female. Prothorax with disk very convex, the margins rather broadly reflexed. Elytra obsoletely pubescent, the apical half smoky black; the division of this from the rufous basal half is indeterminate and variable. The apical segments of the male are figured in Trans. Ent. Soc. 1880, pl. i. fig. 11.

11. **Lucidota lugens.** (Tab. IV. fig. 18, ♂.)

Aterrima, subopaca, prothoracis lateribus modice reflexis, disco in medio obsolete canaliculato fere lævi, angulis posticis subrectis; antennis compressis vix serratis, elytris vix costatis. Long. 14 millim. ♂ ♀.
Mas abdominis segmento septimo ventrali fortiter exciso, maculis duabus flavis; pygidio longe, apice leviter emarginato et elevato.
Femina segmento ventrali apicali, apice minute exciso, maculis duabus obscure flavis.

Hab. Mexico, Oaxaca, Parada, Peras (*Sallé*).

The figure is drawn from a male from Peras.

This species is totally black, with the exception of the two luminiferous spots; and in two or three examples the pleural portion of the prosternum enclosing the head is brown. The thorax is as long as wide, its disk a little shining, and sometimes with a faint longitudinal impression in the middle. The antennæ of the male are about half as long as the body; of the female shorter; they have the second joint very short. The abdomen has the dorsal segments with projecting angles, but hardly lobed.

There is no other species to which this black obscure insect can be compared among

the Lampyridæ but *Alychnus xanthorrhaphus*, which, however, has shortened elytra in the female and is non-luminous, or apparently so. The yellow spots at the apex of the abdomen of this insect are no doubt luminiferous, though they can scarcely emit a vivid light. The habits of these black and either little- or non-luminous species require investigation. One would have anticipated that the more obscurely-coloured species were of very retired habits, and would, at least in one sex, have been more luminous than some others. The eyes of the males are scarcely, if at all, larger than those of the females.

PHOTINUS.

Photinus, Castelnau, Ann. Soc. Ent. Fr. ii. p. 141 (1833).

This genus as it stands in Lacordaire (Genera des Col. iv. p. 321), and in the sense in which it is here adopted, includes no less than ten genera proposed by Motschulsky and two by Leconte, and is the most extensive among the Lampyridæ. In the Munich Catalogue 116 species are recorded and referred to it. Some restriction, however, is necessary; and I have retained Leconte's genus *Pyrectomena*, which is there united with it. It appears to be exclusively an American genus, ranging from Canada to Buenos Ayres, and probably further south. Species are indeed referred to it from China and the Pacific Islands; but their systematic location needs confirmation. The number of species inhabiting Central America is doubtless large. We here record between thirty and forty species. The *Photini* include species of the smallest and also of large size, and may generally be known by their oblong, rather depressed form, their simple antennæ, and abdomen without lobes to the dorsal segments. The females have the apical and often the two preceding ventral plates notched.

1. **Photinus congruus.** (Tab. IV. fig. 12, ♂.)

Photinus congruus, Chevrolat, Col. Mex. Cent. i. no. 8.

Hab. Mexico, Cordova, Oaxaca, Puebla, Tuxtla (*Sallé*).

One of the largest species, 17–21 millims. in length. Thorax with the disk dark, the margins pale bone-colour. Elytra fuscous, with the suture, a central vitta along the discoidal nerve, and the fold pale.

There is a variety in M. Sallé's collection from Oaxaca paler, the thorax with the disk brick-red, with a large pitchy-black spot; the vittæ, especially the discoidal one, wider; the female with the thorax narrowed from the base as in *P. meteoralis*.

The specimen figured is from Puebla.

2. **Photinus meteoralis.** (Tab. IV. fig. 14.)

Nigro-fuscus, latus, opacus, thorace sordide albido, disco et limbo toto nigro, angulis posticis acutis; abdominis segmentibus quatuor primis apicibus albis, quinto et sexto diaphanis totis albis. Long. 19–21 millim. ♂ ♀.

Hab. Guatemala, San Gerónimo, Sinanja valley (*Champion*).

Equal in size to *P. congruus*; the form of the prothorax is different, being longer, more narrowed in front, and not so wide at the base, from which the sides begin to contract at once, forming acute angles with the base. There is a rather indistinct carina on the front half of the disk. The elytra are much darker and more ovate than in *P. congruus*, the pale vittæ are only a little visible in paler specimens, they have the lateral margin expanded, two nervures a little visible near the base, and are clothed with a grey, but very short pubescence. The pygidium in the male is truncate, the seventh ventral plate with a round emargination, fuscous in the middle, diaphanous at the sides. In the female the apical plate is dark fuscous, notched, the penultimate dark at its base.

3. **Photinus gliscens.** (Tab. IV. fig. 13.)

Pallide testaceus; capite, antennis, palpis, genibus tarsisque nigro-fuscis; prothoracis disco aurantiaco, macula obconica picea, obsolete longitudinaliter impressa; elytris subparallelis, fuscis, margine externo, sutura et vitta discoidali sat lata pallide testaceis. Long. 18 millim. ♂ ♀.

Hab. MEXICO, Tuxtla (*Sallé*).

This is one of the most conspicuously marked and handsomest of the *Photini*, and is very distinct from any other known to me. The head is fuscous, excepting the mouth and antenniferous tubercles. The antennæ and palpi fuscous. The whole of the underside in the male is pale, excepting the base of the first four ventral plates, which are irregularly blotched with fuscous. In the female, as usual, the breast and all the segments are more or less of the darker colour, the paler parts being the margins of the first four, the middle of the fifth, and the whole of the apical one. The thorax is nearly semicircular; but the base is a little contracted; the disk bears a rather long triangular spot, the apex of which is towards the base. The elytra are dark fuscous, with conspicuously pale margins and central vitta. The male has the pygidium with a double notch. The female the same, very slightly sinuate; the ventral plate rounded, and with a minute emargination in the centre.

4. **Photinus nigridorsis.** (Tab. IV. fig. 17, ♀.)

Nigro-fumosus, elytris subopacis, oblongo-ovalis, prothorace antice angustato lateribus late testaceis, elytris marginibus et apice indeterminate late testaceis. Long. 13–15 millim. ♂ ♀.

Hab. MEXICO, Istapan, Juquila (*Sallé, Mus. J. Sturm*).

A female specimen from Juquila is figured in the Plate.

Body beneath, legs, and antennæ smoky black; in the male the seventh and apical ventral plates and the apical half and margins of the pygidium are pale; in the female the apex only. The antennæ are subfiliform, longer in the male and a little compressed; the eyes of moderate size, larger in the males than the females. The thorax is wider at the base than long, the sides sinuous and not much reflexed. The disk is almost smooth, in some a faintly impressed channel, in others a very fine carina may

be seen on the centre, while at other times it is even, or shows a circular depression. The elytra are opaque, the discoidal nervure visible, the expanded margin and usually the apical quarter testaceous; the discoidal portion is fuscous or smoky black, and ends somewhat indefinitely, sometimes leaving only the apical margin and part of the suture pale. In the male the margins of the fifth and sixth, the seventh and apical segments, and apex of the pygidium are pale yellow. In the female the apex alone is diaphanous.

I have adopted the MS. name attached to a specimen of this species from Sturm's collection.

5. **Photinus ovatus.** (Tab. IV. fig. 16.)

Nigro-fumosus; prothorace subnitido, lateribus late elytrisque triente basali testaceis, his subcostatis.
Long. 13 millim. ♂.
Mas segmentis ventralibus septimo et apicali pallidis, pygidio fusco.

Hab. Mexico, Juquila (*Sallé*).

Nearly related to *P. nigridorsis*, but differing so far in coloration that I do not think it can be considered a mere variety. The disk of the thorax is rather distinctly channelled, the black central vitta is bordered with red on each side in the middle, which colour may be seen on the prosternal surface above the front coxæ. The pygidium is not pale.

A single specimen only has come under my notice.

6. **Photinus perelegans.** (Tab. III. fig. 12.)

Photinus perelegans, Gorh. Trans. Ent. Soc. 1880, p. 31.

Hab. British Honduras, river Sarstoon (*Blancaneaux*); Guatemala, Calderas (*Champion*).—Antigua.

The figure is of a male from Calderas.

This species is the first of a series pertaining to Motschulsky's genus *Macrolampis*, which agree in having the fifth and sixth ventral plates longer than those preceding them and clear ivory-white or yellow, with a lateral impression on each, somewhat like breathing stigmata (the true stigmata being of course hidden in the folded membrane connecting the dorsal and ventral plates). The females have a portion of the abdomen luminous, usually the centre of the fifth segment, but are obviously less brilliant than the males. In some cases they also have the elytra abbreviated. I have only as yet observed this in two species (*M. longipennis*, Mots., and *M. extensus*, Gorh.). The female of *P. perelegans* has the fifth segment broadly whitish yellow, with fuscous spots on each side of its base, the sixth and seventh plates being fuscous.

Small examples are a little like *P. cinctellus*, but are always much narrower, and the thorax is particularly elongate.

7. **Photinus extensus.** (Tab. IV. fig. 11, ♀.)

Plumbeo-niger, elongatus, parallelus, thorace albido-flavo, macula oblonga picea, utrinque miniato punctoque parvo subbasali. Long. 13–15 millim. ♂ ♀.

Mas abdominis segmentis ventralibus quinto et sexto albis, marginibus leviter emarginatis, medio bicarinatis, utrinque impressis, pygidio plus minusve infuscato apice truncato.

Femina elytris abbreviatis, abdominis dimidium vix tegentibus, abdomine lato, ad apicem acuminato, segmento ventrali quinto macula magna flava.

Hab. MEXICO (*Höge, Sallé*).

Though somewhat resembling *P. longipennis*, Mots., this species differs from it in not having the elytra margined with white. The head, antennæ, legs, breast, first four segments of the abdomen, scutellum, and elytra are fuscous black and dull; the disk of the thorax is a little shining and channelled, the pitchy spot is straight at its sides, longer than wide, it does not touch the reflexed basal margin, nor does it reach the front. The little dark punctiform spot on each side seems characteristic. It is very closely allied indeed to the next species. The female figured is from Sallé's collection.

8. **Photinus productus.** (Tab. IV. fig. 10, ♂.)

Plumbeo-niger vel fumosus, elongatus, parallelus, thorace flavo, macula quadrata picea. Long. 15–18 millim. ♂ ♀?

Mas abdominis segmentis quinto et sexto macula magna flava, apice et pygidio totis flavis, hoc apice utrinque exciso.

Hab. MEXICO, Puebla, Parada (*Sallé*), Chiapas, ♀?

This is very closely allied to *P. extensus.* It differs in having the ventral segments in the male luminous only in the middle, the pygidium entirely pale and diaphanous, the antennæ one third shorter. Minor points of difference are that the thoracic spot is square and the basal dots are absent.

The female (which, I think, may be that of this species) is fully winged, with very narrow pale margins to the elytra and suture. In this specimen the fifth ventral plate alone is yellow in the middle. Being from another locality, I do not feel that sufficient evidence exists of its being the same species to justify me in giving the characters of this female in the diagnosis. The male figured is from Puebla.

9. **Photinus attenuatus.**

Elongatus, nigro-fuscus, prothorace fulvo, antice rotundato, postice paululum angustato, angulis posticis acutis, prominentibus, disco longitudinaliter impresso, elytris quintuplo longioribus quam thorax, parum nitidis, plumbeo-fuscis, coxis et femoribus anticis testaceis. Long. 13–15 millim. ♂.

Mas abdominis segmentis quinto et sexto flavis, marginibus sinuatis, eburatis; septimo flavo, profunde exciso.

Femina latet.

Hab. MEXICO, Guanajuato (*Sallé*).

The peculiarly long attenuated form renders this an easy species to recognize. It belongs to the *longipennis* group of *Photinus*, which Motschulsky separated under the

generic name *Macrolampis*. These species have the males with two ventral plates (the fifth and sixth) very long and diaphanous, and are evidently highly luminous. The females are heavy insects with short elytra, and, I conceive, are no less luminous than their males.

The present species has the head fuscous, with large, prominent eyes; the antennæ are not perfect in any of the three specimens before me; but sufficient remains to show them to be filiform and of moderate length.

The thorax is of a form unusual in this genus, having the hind angles a little turned out; this and its totally red colour will amply distinguish it from *P. extensus*.

10. **Photinus consanguineus.** (Tab. IV. fig. 25, ♀.)

Oblongus, subparallelus, flavo-testaceus, capite, antennis, palpis, pectore ex parte, tibiis, abdominis basi et elytris nigro-fuscis, his sutura margineque testaceis; thoracis disco miniato, macula parum distincta picea. Long. 13–14 millim. ♂ ♀.

Mas abdominis segmentis ventralibus quarto ad apicem, quinto, sexto septimo et apice pallide flavis.

Femina segmento sexto partim, apicali toto infuscato.

Hab. Mexico, Tuxtla (*Sallé*).

This species agrees very closely with specimens in my collection from Norris bearing the above name; and it may be assumed to be the *P. consanguineus* of Dejean's Catalogue. I have not been able to see an authentic specimen of Leconte's species of the same name; and as there are several allied species, I cannot feel sure that it will prove to be the same. It is rather larger and more parallel than the species here referred to as *cinctellus*, and has the thorax much less distinctly marked with pitchy; in one example at least the spot is quite absent. From the species referred to by me as *pyralis*, Linn. (Trans. Ent. Soc. 1880, p. 23), it differs in being smaller, with a less distinct thoracic spot.

The section to which it belongs presents the greatest difficulties, both in separating the species and in their identification with the Linnean and Fabrician types.

11. **Photinus cinctellus.** (Tab. IV. figg. 23 ♀, 24 ♂.)

Photinus cinctellus (Chev. MS.[1]), Gorh. Trans. Ent. Soc. 1880, p. 24[2].

Hab. Mexico[1], Cordova, Tuxtla, Panistlahuca (*Sallé*); Guatemala, Zapote[2], Chacoj department of Vera Paz (*Champion*); Nicaragua, Chontales (*Belt*); Costa Rica, Volcan de Irazu (*Rogers*).

12. **Photinus simplex.**

Fumeo-niger, oblongo-ovatus, prothorace flavo, disco nigro nitido utrinque miniato, elytris fumosis concoloribus, femoribus et coxis pallidis, abdominis segmento quinto albo, sexto etiam interdum albescente. Long. 11 millim. ♀.

Hab. Mexico, Parada (*Sallé*); Guatemala, Chacoj (*Champion*).

Another species of the *cinctellus* group, and very closely allied to that species and to

P. reichei. The difference between it and the former consists in its average larger size, the more brightly coloured thorax, and wholly black elytra, and in its having only the fifth, or fifth and sixth segments white, whereas in *cinctellus* the last three plates (and often the whole abdomen) of the female is pale.

From *P. reichei*, the shape of the thorax (which is the same as that of *cinctellus*), the absence of the slightest tendency to a pale suture, the colour of the ventral segments, and pale femora distinguish it. I have only seen a few female specimens which I think belong to this species.

13. **Photinus reichei.**

Photinus reichei (Deyrolle, Sallé's collection).

Oblongo-ovalis, nigro-fuscus; prothorace (disco excepto) flavo, disco convexo, nitido, late fusco utrinque miniato, obsolete canaliculato, basi lata; elytris nigro-fuscis, sutura tenuissime flava; abdomine segmentis tribus ultimis ventralibus et dorsalibus flavis. Long. 11–14 millim. ♂ ♀.

Hab. Mexico, Parada (*Sallé*).

A species with the closest affinity to *P. cinctellus*, yet probably distinct—the characters upon which I should place most reliance being its average larger size, the greater width of the thorax at the base, the nearly uniform width of the marginal yellow of the sides and front, the dark, almost unicolorous elytra, and the pale dorsal apical segments (in *P. cinctellus* these are often, but not always, fuscous, including the pygidium). The base of the legs is darker than in any *cinctellus* I have examined.

14. **Photinus sturmii.** (Tab. IV. fig. 21, ♀.)

Ater, opacus, oblongo-ovatus, prothoracis lateribus reflexis, late albidis, nigro limbatis, disco tenuiter carinato, elytris tricostatis. Long. 14–17 millim. ♀.

Hab. Mexico, Puebla (*Sallé, coll. Sturm*).

Entirely dull opaque black, with the exception of a broad vitta occupying the reflexed portion of the sides of the thorax, which is almost pure white. The extreme margin, both lateral and of the base, is narrowly black, and bears a row of punctures. The disk is dull black, widest at the base, with a very fine but distinct carina (in one specimen, however, this is posteriorly converted into a very fine channel). The elytra have three distinct costæ, the discoidal one prolonged to near the apex, the other two vanishing before the middle. The underside is a little smoother, but scarcely shining.

Four specimens, all females, in Sallé's collection (one of which is labelled *P. lucifera* in Sturm's writing), and one in the British Museum, are all I have seen of this species. I have not adopted the name *lucifera*, as it has been used for a species of *Pyrectomena*, and might thus produce confusion.

15. **Photinus salvini.** (Tab. IV. fig. 6.)

Ater, opacus, subtus subnitidus, prothorace sanguineo, medio late nigro-vittato, elytris obsoletius costatis. Long. 15 millim. ♂ ♀.

Hab. Mexico, Durasnal, Parada (*Sallé*).

This is perhaps the most beautiful of the Lampyridæ, the blood-red colour of the thorax contrasting with the opaque black elytra. It is allied to *P. sturmii*, but is more oblong than that species; the thorax is formed much as in the genus *Phænolis*, prominent in front, much rounded at the sides, and contracting to the hind angles, which are acute. The front and lateral margins incline to yellow, especially underneath. The disk has a clearly defined black vitta from the base, where it is widest, to to the front; it is hardly carinate in front, and very obsoletely channelled in the middle. The antennæ are compressed, widest in the middle, their second joint distinct, only half as long as the third. In neither sex is there the slightest trace of luminous spots. The male has the eighth or genital plate distinct, the seventh nearly as long as the sixth, and only little emarginate. The female has the apical plate notched, but neither of the preceding ones.

There are two specimens of this in the British Museum; and these, with the male and female in M. Sallé's collection, are all I have seen.

The figure represents the female from Durasnal.

16. **Photinus guatemalæ.** (Tab. III. fig. 10.)

Photinus guatemalæ, Gorh. Trans. Ent. Soc. 1880, p. 26.

Hab. Guatemala, Calderas, Dueñas (*Champion*).

17. **Photinus lunicollis.** (Tab. III. fig. 9.)

Photinus lunicollis, Gorh. loc. cit. p. 27[1].

Hab. Mexico, Puebla, Yolos (*Sallé*); Guatemala, Capetillo, Dueñas (*Champion*).

About twelve specimens of this pretty species have been received from Capetillo. I have only seen one from Dueñas. The figure is that of a female from Capetillo.

18. **Photinus ruficollis.**

Photinus ruficollis, Gorh. loc. cit. p. 27[1].

Hab. Mexico, Cuernavaca (*Sturm, coll. Sallé*); Guatemala, Zapote (*Champion*)[1].

Similar in coloration to *Lucidota bella*, *Photuris collaris*, and other species; it may, however, be known by its *leaden*-black depressed elytra, as well as by the almost totally pale abdomen.

The specimens in M. Sallé's collection, three in number, from Mexico, are much larger than the type, and are named *auranticollis*, Sturm. They are two males and a female, 14–16 millimetres in length; the former have the base of the fourth, the fifth,

and sixth segments and apex entirely clear yellow and smooth. The two subapical ventral plates are notched triangularly in their centre; the seventh very short, only just visible.

The female has the same abdominal plates yellow, the structure being as usual in this genus, the two subapical being emarginate, and the apical (seventh) plate notched.

19. **Photinus sanguinicollis.** (Tab. III. fig. 8.)

Photinus sanguinicollis, Gorh. Trans. Ent. Soc. 1880, p. 30.

Hab. Costa Rica, Irazu (*Rogers*).

The specimen figured is a female, and at present remains unique. I have only seen one other specimen, which may possibly belong to the same species, but which differs from it both in having the sides of the thorax more widely fuscous, and also in having the abdomen wholly black. This specimen is from Vera Paz, Cubilguitz.

In the present state of our knowledge of these most interesting insects it would be absolutely impossible to decide upon their identity or otherwise on single specimens from different localities. When they are much more fully known it is probable that long series of closely allied species will be found. I am also inclined to think the same species may present a luminous and a non-luminous form at different times, or under varying circumstances.

20. **Photinus aurora.** (Tab. III. fig. 7.)

Photinus aurora, Gorh. loc. cit. p. 30.

Hab. Costa Rica, Irazu, Rio Sucio (*Rogers*).

21. **Photinus cordovæ.**

Nigro-fumosus, subopacus, thorace flavo, disco miniato, in medio et ad basin infuscato, antennis compressis. Long. 9–10 millim. ♂ ♀.

Hab. Mexico, Cordova (*Sallé*).

Very similar in size and general appearance to *P. ruficollis.* It is distinguished, however, by permanent characters. The thorax has the disk with a dark vitta widening at the base; even its whole edge is sometimes slightly infuscate. The scutellum is black, as well as the whole of the abdomen—it being therefore doubtful whether this species is capable of emitting light.

In paler examples the front femora and central parts of the sterna are pitchy.

The only species with which this could be confounded is *P. fumigatus.* It is, however, much larger and wider, and has the thorax brighter red, with only a narrow and rather indistinctly fuscous vitta.

22. **Photinus albicauda.**

Niger, opacus, elytris subfuscis; thorace roseo, limbo toto et vitta sat lata mediana nigro-fuscis, lateribus sinuatis, antice angustatis. Long. 10–13 millim. ♂.

Mas pygidio apice sinuatim truncato, hoc cum segmento septimo et apicali ventralibus albis.

Hab. Mexico, Cordova (*Sallé*).

This is not very like any other with which I am acquainted. The sinuate sides and rather projecting front of the thorax, together with its colour and reflexed lateral margins, give it very much the appearance of a *Pyrectomena*. The centre of the thorax presents a deep but rough channel. The front and middle femora are pale, excepting at the knees. The antennæ are nearly half as long as the body, and this, together with the channelled thorax and a little expanded elytra, sufficiently distinguish it from any *Pyrectomena*.

Four males are all I have seen.

23. **Photinus latiusculus.**

Ovatus, fumeo-niger, prothorace albo, medio nigro-vittato, utrinque roseo obsolete canaliculato, elytris opacis subpubescentibus. Long. 7½–8 millim. ♂ ♀.

Hab. Mexico, Cordova, Tuxtla (*Sallé*).

The antennæ are rather long, reaching to the middle of the abdomen, and are very thin; the mouth and palpi are pale, except at their tips, as are the base of the legs indistinctly. The abdomen is whitish at the apex, but not very distinctly, excepting the pygidium and last two ventral segments in the male, and last ventral and dorsal plate only in the female. The thorax is widish at the base, and rather strongly narrowed to the front.

This is a species evidently with very soft integuments; the elytra, though black, are semitransparent. It has the facies of a small *Hyas*, and somewhat resembles *Aspidosoma pulchellum*.

24. **Photinus perlucens.** (Tab. III. fig. 11.)

Photinus perlucens, Gorh. Trans. Ent. Soc. 1880, p. 29[1].

Hab. Guatemala, Calderas[1], Dueñas, Capetillo (*Champion*). ♂ ♀.

A Calderas specimen is figured.

When I drew up the description of this species I had only seen two males; among three or four more specimens since sent is a female, which only differs in having the apical ventral segment black.

25. **Photinus fumigatus.**

Photinus fumigatus, Gorh. loc. cit. p. 28.

Hab. Guatemala, Zapote (*Champion*).

Very like *P. exstinctus*, and, like it, apparently incapable of emitting light; this, however, can hardly be determined from dead examples only. It may be distinguished from it by being wider and less linear.

26. **Photinus affinis.**

Photinus affinis, Gorh. Trans. Ent. Soc. 1880, p. 28.

Hab. MEXICO, Capulalpam (*Sallé*); GUATEMALA, Calderas, Capetillo (*Champion*).

27. **Photinus plumbeus.**

Photinus plumbeus, Gorh. loc. cit. p. 29.

Hab. GUATEMALA, Zapote (*Champion*).

Very nearly allied to both *fumigatus* and *affinis*; smaller, with the elytra of a more leaden black, and with the abdomen almost entirely white.

28. **Photinus pulchellus.**

Photinus pulchellus, Gorh. loc. cit. p. 29[1].

Hab. GUATEMALA, Zapote[1] (*Champion*); NICARAGUA, Chontales (*Janson*).

The Chontales specimens differ a little from the type; they are less brightly coloured, and in the male the fifth and sixth segments are eburated, yellowish; the fourth plate (much shorter than these) is also whitish.

29. **Photinus concinnus.**

Photinus concinnus, Gorh. loc. cit. p. 30[1].

Hab. GUATEMALA, Zapote[1], Vera Paz (*Champion*); NICARAGUA, Chontales (*Janson*).

Very nearly allied to *pulchellus*, smaller and more slightly built, and with the suture scarcely paler.

30. **Photinus parvulus.**

Griseo-niger, prothoracis margine albo, disco nigro, lævi, abdominis apice albescente. Long. $4\frac{1}{2}$–5 millim. ♂ ♀.

Hab. GUATEMALA, Zapote (*Champion*).

Var. *a*. Prothoracis disco nigro-vittato utrinque maculata miniata.

Hab. MEXICO, Cordova (*Sallé*).

Var. *b*. Prothorace magis elongato, disco fusco utrinque miniato, elytrorum sutura et margine tenuissime albis.

Hab. GUATEMALA, Zapote, San Gerónimo (*Champion*).

This little *Photinus*, the smallest species of the whole family yet noticed, is certainly very near to *P. minutus*, Say. I observe the following points, however, in which it diverges. The thorax is more shining and rather longer in proportion to its width;

its sides are always more or less *whitish* (in my types of *minutus* the red predominates); the abdomen is whitish; the antennæ are longer, reaching to about the fourth segment of the abdomen, or in male specimens even further. In some specimens there is an oblong impression on the disk of the thorax, but it is not channelled.

31. **Photinus picticollis.**

Nigro-fumosus, prothorace nitido, disco nigro-vittato utrinque macula sanguinea, margine fusco alboque variegato; femoribus anterioribus basi subalbidis. Long. 8–9½ millim. ♂ ♀.

Mas oculis majoribus, abdominis segmentis quinto et sexto albis vel flavis, eburatis, medio sinuatim emarginatis, subapicali brevi albo, pygidio apice fusco.

Femina abdomine fusco, segmento quinto subdiaphano sordide albo.

Hab. GUATEMALA, San Gerónimo, Chiacam (*Champion*).

Although this species presents a superficial resemblance to *P. californicus*, the white luminous abdominal segments of the male remove it to another section, it being, in fact, as I think, allied to species of the *extensus* group.

The thorax is more vividly marked with carmine or blood-red than that of *P. sobrinus*, but is not margined so distinctly with black, the white and fuscous running into each other. The disk is usually somewhat tumid on each side of a short groove, and has often two or four tubercular swellings there. In front and at the sides it is punctured very closely and subrugosely. The elytra are quite sooty black. This species must be highly luminous, at all events in the male sex; and accordingly we find the eyes of that sex very large and spherical, much more so than in the other small *Photini*, which, though luminous, have not these ivory-white long fifth and sixth ventral plates in the males.

32. **Photinus exstinctus.**

Lucidota exstincta, Gorham, Trans. Ent. Soc. 1880, p. 17.

Hab. MEXICO, San Luis Potosi (*Dr. Palmer*), Cordova, Oaxaca (*Sallé*); GUATEMALA, near the city, Dueñas, San Gerónimo (*Champion*).

This species and the following one were at first referred by me to *Lucidota*, with some species of which they have some affinity; but they are so closely allied to *nigricans*, Say, a species found in the United States, that it will be better to place them here at present. Indeed this species is named "*nigricans*, Say," in Sallé's collection; but the representatives of that species, which I have received from Massachusetts, have the sides of the thorax of the same dark fuscous colour as the disk, whereas among a good series taken by Mr. Champion, and another in Sallé's collection, *none* is even inclining to be dark. I therefore still think it will prove distinct.

This is one of those few species occurring in various genera which apparently have no portion of the body translucent, and are therefore presumably not luminous; the supposition, however, requires confirmation by observation of the living insect.

33. **Photinus sobrinus.**

Photinus sobrinus, Dugès (ined., coll. Sallé).

Lucidota californica, Gorham, Trans. Ent. Soc. 1880, p. 17[1], nec Mots. Etud. Ent. ii. p. 3 (*Ellychnia*).

Hab. California[1] (*coll. Chevrolat*).—Mexico, Guanajuato, Oaxaca, Puebla (*Sallé*).

Apparently distinct from the last species; the margin of the thorax is fuscous, leaving (in some cases) only two rosy spots between it and the central vitta. The whole insect is usually broader and more robustly built.

34. **Photinus mexicanus.**

Ellychnia mexicana, Motsch. Etud. Ent. ii. 1853, p. 3.

Hab. Mexico.

According to the description, this and *Ellychnia californica*, Mots., resemble *P. coruscus*, L., but are much larger; I have not, however, been able to identify any of the species I have seen with them.

35. **Photinus coruscus.**

Lampyris coruscus, Linn. Syst. Nat. i. p. 644.

Photinus autumnalis, Melsh. Proc. Ac. Phil. ii. p. 303.

Photinus opacus, Sturm coll.

Hab. North America, United States, California.—Mexico, Oaxaca, Puebla (*Sallé*).

This is one of those species which seem to defy all attempts at definition, its form being modified in distant parts of the North-American continent. I had not seen it before from Central America; but three specimens from Sallé's collection so closely resemble *P. autumnalis* from New York that I am convinced nothing but the study of the living insects can settle the question of their specific identity or distinctness. These specimens appear a little longer and browner; and the red thoracic vittæ are a little wider, and not continued quite to the front margin.

36. **Photinus ater.**

Photinus ater, Dugès (ined., coll. Sallé).

Ater, oblongo-ovalis, prothorace subnitido, medio breviter obsolete canaliculato; elytris subopacis, callo humerali parum elevato, confertim punctatis, margine antice paulo explanato. Long. 7–9 millim. ♂ ♀.

Mas segmento septimo angulariter exciso lateribus flavis, apicali sat magno.

Femina segmento apicali ventrali apice fisso maculis tribus minutis flavis.

Hab. Mexico, Guanajuato, Puebla, Oaxaca (*Sallé*).

This curious little Lampyrid is wholly black, with the exception of the small luminous spots on the apical segment in the female, and on the sides of the subapical plate in the male. It is of the form of *P. coruscus*, but smaller than the smallest examples of that species or of *P. autumnalis*. The upperside is a little shining; the

thorax is nearly semicircular, but with the length not much shorter than the breadth at the base.

PYRECTOMENA.

Pyrectomena (Dejean), Motschulsky, Etud. Ent. 1852, p. 37; Leconte, Synops. 336; Gorham, Trans. Ent. Soc. 1880, p. 32.

This is the only one of Motschulsky's divisions of *Photinus* I have felt able to retain. It is a natural genus, composed of species with, on the whole, a very uniform and distinct aspect. The shape of the thorax and the shortness of the antennæ are especially characteristic. About nine species are now known to me, all from North America or the West Indies. Cuba has one, St. Domingo one or two; the remainder from the United States as far north as Lake Superior to Texas. I have seen as yet only three species from Central America.

1. **Pyrectomena angulata.** (Tab. IV. fig. 19, ♂.)

Photinus angulatus, Say, Journ. Ac. Phil. v. p. 162.

Hab. North America, Texas (*Belfrage*).—Mexico, Puebla (*Sallé*).

I cannot find sufficient difference between a single specimen in Sallé's collection and a representative pair of this species sent me by Mr. Belfrage, to warrant their separation. The Mexican specimen which we figure has less fuscous marking at the sides of the thorax; the seventh or subapical ventral plate of the abdomen is pitchy in the middle; and the whole specimen is larger. The thorax is somewhat foreshortened in the plate.

2. **Pyrectomena vexillaria.** (Tab. IV. fig. 20.)

Oblongo-parallela, antice et postice angustata, fusca, capite, antennis basi, prothorace, coxis, femoribus basi, scutello, elytrorum margine et sutura abdominisque segmentis ventralibus, quarto excepto, flavis. Thorace lateribus parallelis, antice producto, disco macula pallide fusca, angulis posticis acutis, carinula subintegra antice minus distincta flava. Long. 15 millim. ♂.

Hab. Mexico, Vera Cruz (*Sallé*).

This has more the form of the very few specimens of this genus I have seen from the West-India Islands than of those from the United States; that is, the thorax is more advanced in front, and the elytra are more sharply acuminate behind. The underside is generally yellow; but the antennæ from the fourth joint, the breast, the tibiæ, tarsi, and part of the thighs, the fourth ventral plate and sides of the first three are more or less pale fuscous. The pronotum is very long, rather roof-shaped, the ridge being a delicate but distinct carina. The basal margin slopes away on each side from the centre, meeting the straight sides acutely, and forming a "gable" when viewed horizontally. The elytra are fuscous, margined entirely (narrowly at their base) with yellow. Two nervures are distinct, but are scarcely visible at the base, and vanish before the apex. The antennæ are shorter than the thorax.

A single specimen only is in Sallé's collection.

3. **Pyrectomena striatella.** (Tab. III. fig. 13, ♂.)

Pyrectomena striatella, Gorham, Trans. Ent. Soc. 1880, p 33.

Hab. GUATEMALA, Dueñas, Zapote (*Champion*, *Salvin*).

Var.—Panzos, province of Vera Paz (*Champion*).

The variety is rather more shining and has concolorous costæ to the elytra. A specimen from Dueñas is figured.

CRATOMORPHUS.

Cratomorphus, Motschulsky, Etud. Ent. i. p. 35 (1852).
Photinus, Castelnau (pars).

Cratomorphus includes some of the largest species of the Lampyridæ, rivalling in size *Lamprocera latreillei*; and at the same time they are highly luminous insects. The males have large globular eyes; and in both sexes the antennæ are simple. The thorax has usually two transparent portions near the front margin above the eyes. In this genus the apical segments of the abdomen exhibit peculiarities of form varying in each species.

The distribution of *Cratomorphus* is very much the same as that of *Photinus*; but it has not occurred so far north, no species having yet been found above the tropic of Cancer. On the other hand, it occurs as far south as Buenos Ayres; so that South America must be regarded as the home of these insects.

The species are not numerous, nor do they appear to occur in such numbers where they are found; yet, owing to their large size, they must add considerably to the brilliancy of the night scene of a tropical forest.

At present I have only seen three species, represented by seven specimens from the northern continent.

1. **Cratomorphus fuscipennis.**

Cratomorphus fuscipennis, Mots. Etud. Ent. ii. p. 33[1]; Gorh. Trans. Ent. Soc. 1880, p. 34.
Cratomorphus latus, Kirsch, Berl. Zeit. 1865, p. 72.
Cratomorphus albomarginatus, Guérin coll. (ined.).

Late ovatus; testaceus, antennis nigris, articulo primo flavo, fusco variegato, secundo brevi flavo, tibiis tarsisque infuscatis. Long. 27–29 millim., lat. 14–15 millim. ♂.

Mas abdominis segmentis quinto et sexto marginibus medio sinuatis, septimo late emarginato, pygidio truncato.

Hab. NICARAGUA, Chontales (*Belt*).—BRAZIL[1].

This fine insect is the largest species of "glow-worm" yet found in Central America; and four males sent by the late Mr. Belt are all that have yet occurred.

I have little doubt of its identity with the *C. latus* of Kirsch; the reference to Motschulsky's species is more doubtful, his description consisting merely of a statement that his insect resembled *C. fabricii* (*giganteus*, Drury), but was without the

pale vitta. I have seen, however, specimens of an insect I cannot distinguish from this one which were labelled "Brazil" and "Buenos Ayres."

The upperside is entirely of an ochreous yellow; the prothorax has a very faint carina, and is scarcely at all transparent in front. The palpi are fuscous; the eyes of course black, being with the antennæ almost the only dark parts; and, owing to its entirely yellow colour, the luminous portions are not clearly distinguishable.

2. **Cratomorphus dorsalis.**

Cratomorphus dorsalis, Gyll. in Schönh. Syn. Ins. iii. App. p. 24?; Gorh. Trans. Ent. Soc. 1880, p. 36.
Nec *Cratomorphus dorsalis*, Mots. Etud. Ent. ii. p. 34.

Oblongo-ovatus; fuscus, prothoracis disco basi piceo, lineolis duabus rufis; antennis, palpis, tibiis, tarsis, abdominis segmentibus quatuor primis macula utrinque piceis; elytris costatis, ad margines dilutioribus. Long. 22 millim. ♂.

Hab. NICARAGUA, Chontales (*Janson*).—ANTILLES.

The thorax is not so much narrowed towards the front as in *C. fuscipennis*, so that the hind angles are more nearly right angles; and there are two lunate clear patches in the valley of the reflexed front margin. The central carina is very fine indeed, almost obsolete. The underside is variegated with fuscous and yellow, the pitchy spots on the abdominal plates being conspicuous. I have a female without locality which I refer to this species, the underside of which is nearly wholly fuscous, with the exception of the fifth and sixth segments. The apical ventral and dorsal plates are nearly similar in form, not truncate, the ventral one notched in the female.

3. **Cratomorphus picipennis.** (Tab. IV. fig. 7.)

Breviter oblongus, nigro-fuscus vel piceus; prothorace pallido, antice diaphano, medio subcarinato, pedibus basi dilutioribus. Long. 13–16 millim. ♀.

Mas latet.

Femina abdominis segmentis quinto et sexto (marginibus exceptis) albis, diaphanis, apicali triangulari, apice fisso, pygidio apice rotundato integro.

Hab. MEXICO, Cordova (*Sallé*), GUATEMALA, San Juan (*Champion*).

The figure represents the specimen from San Juan.

Head, with the antennæ and palpi, pitchy, mouth paler; prothorax pale yellowish white. In the smaller of the two specimens before me the disk is pitchy near the base; the depressed portion immediately before the front margin is transparent, so that the antennæ can be seen through from above; the carina divides this clear portion into two lunate spots. The length of the thorax is about equal to the width at the base; the hinder angles are right angles, but the corners are rounded off. The scutellum is pale. The elytra in the larger specimen, which is from San Juan, are pitchy, paler towards the apical half of the margin; in the smaller specimen they are dark fuscous, narrowly margined with pale yellow, as well as the suture.

The underside (with the exception of the prothorax, the margins of the sternal plates, the legs, and two luminous segments) is pitchy. The tarsi and greater part of the tibiæ are also pitchy. The elytral costæ are but little pronounced.

The smaller specimen is the smallest *Cratomorphus* that I have seen, and has large eyes like those of a male; the apical segment, however, is divided by a small notch like that of females of other species, and is the seventh plate; so that I cannot doubt the sex. Excepting in the points specified, the description is that of the specimen figured, in which the head is retracted within the thoracic cavity, and the eyes appear to be of normal size.

ASPIDOSOMA.

Aspidosoma, Gemminger and Harold, Cat. Col. p. 1645.
Aspisoma, Castelnau, Ann. Soc. Ent. Fr. 1833, p. 145.
Nyctophanes, Motsch. Etud. Ent. i. p. 34 (1852).

This is one of the best-defined genera among the Lampyridæ. The upper surface is shield-shaped, depressed, and expanded; the integuments are rather firm, so that they are not so often shrunken as in other genera.

They do not attain the size of the *Cratomorphi*, but they are apparently strongly luminous in both sexes, the males being most developed in this respect; some of the species are quite small, and then resemble small *Photini*. Others of moderate size remind one a good deal of Cassidæ of the genera *Physonota* or *Aspidomorpha*.

The distribution of *Aspidosoma* is confined to Tropical America. A species has been recorded from Buenos Ayres; and it is probable that the genus extends rather further south than the tropic of Capricorn. It is also found in the West-Indian Islands.

1. **Aspidosoma laterale.**

Lampyris lateralis, Fabr. Syst. El. ii. p. 106[1]; Voet, Col. i. t. 48. f. 3.

Hab. Nicaragua, Chontales (*Belt*); Costa Rica (*Van Patten*).—South America[1].

The determination of the species of this genus is a matter of great difficulty, even with fresh, bright specimens; unfortunately the few specimens of this in the Central-American collections are not sufficiently fresh for me to feel very confident about them.

They are 15–17 millims. in length, acuminate in front and behind, of an obscure dirty horn-colour. None of the markings are distinct; those which in these specimens accord with others in my collection referred to *L. lateralis*, Fabr., are a subhumeral patch on the expanded margin, and a narrow spot a little beyond the middle of the margin, leaving an oblique pale space between them, not exceeding in length one quarter of the elytral length. Two slightly raised nervures are very little paler than the ground-colour. The discoidal patch of the thorax is divided by two distinct red lines.

2. **Aspidosoma ægrotum.** (Tab. III. fig. 16.)

Aspidosoma ægrotum, Gorh. Trans. Ent. Soc. 1880, p. 84.

Hab. Mexico, Oaxaca (*Sallé*); Guatemala (*Sallé*), near the city, Capetillo, Purula, San Gerónimo (*Champion*); Nicaragua, Chontales (*Janson*).

3. **Aspidosoma diaphanum.**

Aspidosoma diaphana, Gorh. loc. cit. p. 86.

Hab. Mexico, Tuxtla (*Sallé*); British Honduras, river Sarstoon (*Blancaneaux*); Guatemala, Purula, Cubilguitz, Sabo (*Champion*); Nicaragua, Chontales (*Belt*).

Very close to *A. ægrotum*; separated chiefly on account of its smaller size and more distinct markings.

4. **Aspidosoma depictum.** (Tab. III. fig. 17.)

Aspidosoma depictum, Gorh. loc. cit. p. 85.

Hab. Costa Rica, Volcan de Irazu (*Rogers*).

A pretty and very distinctly marked species; the specimens of *A. diaphanum* from Purula are very much like it. The basal subhumeral spot is more distinct; and the posterior lateral fuscous spot is longer and more irregular in shape.

5. **Aspidosoma pulchellum.** (Tab. IV. fig. 15.)

Aspidosoma pulchellum, Gorh. loc. cit. p. 86.

Hab. Mexico, Cordova, Santecomapan (*Sallé*); British Honduras, river Sarstoon (*Blancaneaux*); Nicaragua, Chontales (*Janson*).

The elytral margin is pale, without lateral spots; sometimes, however, it is fuscous; and this species then very much resembles a small *Hyas angularis*. The fifth ventral segment, or fifth and sixth, are luminous in the female.

6. **Aspidosoma lepidum.**

Aspidosoma lepida (Chevr. ined. coll. Sallé).

Ovale, piceum, nitidum, prothorace flavo, macula laterali et disco piceis, elytris sutura tenuiter, margine in medio, apiceque extremo testaceis. Long. 7–8 millim. ♂ ♀.

Mas abdominis segmentis ventralibus quinto et sexto læte flavis, eburatis.

Femina segmento quinto medio albido-flavo.

Hab. Mexico, Campeche (*Sallé*); Guatemala, San Gerónimo (*Champion*).

This little *Aspidosoma* is easily recognized by its very small size, and the rather distinct markings. The head and two or three basal joints of the antennæ are pale, pitchy fuscous in the male, but dark in the female, as is also most of the body, excepting the luminous portion, which, especially in the male, is very clear yellowish white and shining. The thorax is rather coarsely punctured, the discoidal patch

angular in front, not reaching the margin; the lateral spots are in the middle of the sides, and do not touch the hind angles, but are connected with the central mark. The elytra are dark pitchy with paler markings, shining, and distinctly but closely punctured.

7. **Aspidosoma ignitum.**

Lampyris ignita, Linn. Syst. Nat. i. p. 645[1]; Fabr. Syst. Ent. p. 201[2]; De Geer, Ins. iv. p. 49, t. 17. f. 2.

Nyctophanes ignita, Mots. Etud. Ent. ii. p. 11.

Aspisoma polyzona, Chevr. Col. du Mexique Cent. i. fasc. 3 (1834)[3].

Hab. Mexico, Vera Cruz[3], Cordova (*Sallé*); British Honduras, river Hondo (*Blancaneaux*).—South America, Cayenne[2].

I can see no difference between examples from Mexico and those in my collection labelled Cayenne, except that they are rather larger, and have the humeral spot trapezium-shaped and generally detached from the ground-colour, the pale lines on the elytra a little more distinct, and the apical half of the margin pale. The male has the fifth and sixth segments clear yellow, the female only the middle of those plates pale: sometimes the sixth plate has only a very small luminous spot in this sex.

8. **Aspidosoma bilineatum.** (Tab. IV. figg. 8 ♀, 9 ♂.)

Aspidosoma bilineatum, Gorh. Trans. Ent. Soc. 1880, p. 86.

Hab. Mexico (*Boucard*), Cuernavaca, Oaxaca, Vera Cruz (*Sallé*); Guatemala, Capetillo (*Champion*).

The specimens figured are from Oaxaca.

This appears to be a common species in Mexico. I have seen it in many collections. The female has only the sides of the two segments before the last one luminous.

9. **Aspidosoma costatum.** (Tab. III. fig. 18.)

Aspidosoma costatum, Gorh. loc. cit. p. 87.

Hab. Mexico, Cordova (*Sallé*); British Honduras, river Sarstoon (*Blancaneaux*); Guatemala, Sinanja valley, San Gerónimo, Zapote, (Var.?) Cerro Zunil, Las Mercedes (*Champion*); Nicaragua, Chontales (*Janson*); Panama.

The figure is taken from a British-Honduras specimen.

The variety, which I think will prove not to be a distinct species, is pale lemon-yellow, with the dark parts only of a pale fuscous colour, but with a bright vermilion patch on each side of the thoracic spot on the disk. I suspect they were less matured than other examples when captured. It is observable that these specimens were also captured at a high elevation.

Subfam. *PHOTURIDES.*

Placed by Lacordaire as a subordinate group of the Luciolides. The true Lampyrides with apterous or subapterous females and the true Luciolides are both absent from the New World; and, independently of this, the importance of the wide prominent head with the labrum very much reduced warrants our adopting this as a subfamily.

PHOTURIS.

Photuris, Leconte, Proc. Ac. Phil. v. p. 337 (1851); Lacord. Genera des Col. iv. p. 338.

Photuris, as it is adopted here and by Lacordaire, includes all those species which have the head when extended partly uncovered, thin filiform antennæ, and the claws either simple or divided. In addition to these characters, the males have the seventh segment produced into a narrow lamellar lobe in the middle, a character which is useful in determining the place of some species which much resemble *Photini.* The structure of the claws affords a means of dividing the genus into sections which appear sufficiently natural.

The Photurides are peculiar to North and South America, but have an extended range, being distributed from Canada to the south of Brazil; and one species is even attributed to Patagonia.

Section I. *Claws simple.*

1. **Photuris fasciata.**

Nigro-picea, nitida; pectore, pedibus basi et capite vertice excepto rufis; prothorace flavo, nigro vittato; elytris nigris, macula humerali fasciaque lata pone medium flavis. Long. 12 millim.

Mas latet.

Femina segmento quinto ventrali macula parva rotunda, et sexto basi albis.

Hab. GUATEMALA, Sinanja valley (*Champion*).

Head yellow, with the crown and some marks between the eyes pitchy; antennæ fine, fuscous, the underside of the basal joints alone reddish; palpi fuscous, paler at their bases. Thorax nearly semicircular, hind angles acute, not so much produced as in *P. telephorina*, Perty, which this species very much resembles; the disk with a short but deep furrow near the base. Elytra with the humeral callus and three nervures distinct, narrower than in *P. telephorina*; the yellow fascia is placed further back. The suture is narrowly yellow near the base, so that a black spot is almost detached between it and the humeral mark.

This species is of the same size and coloured so exactly like a Telephorid from other parts of Vera Paz as to be at first sight undistinguishable.

Section II. A. *Male with both claws split, and notched on the inner side; female with the claws simple.*

2. **Photuris discicollis.** (Tab. IV. fig. 26.)

Nigra, prothorace flavo, vitta discoidali nigra basi latiore, angulis posticis peracutis productis. Long. 13–15 millim. ♂ ♀.

Mas abdominis segmentis tribus apicalibus et pygidio pallide flavis.

Femina segmento quinto in medio, sexto toto et apicali cum pygidio pallidis.

Hab. MEXICO, Cuernavaca, Tuxtla, Panistlahuca, Parada (*Sallé*); GUATEMALA, Panima, Teleman, Sinanja valley, Zapote (*Champion*).

The figure is of a female from Panima.

Very closely allied to, but, I think, amply distinct from, *P. collaris*, Gorh. It is to be distinguished by its usually larger size, by the black vitta on the thorax, and by the still longer form of the latter and its very acute angles, by the apical segment being pale in the male, and by the legs being entirely black.

The head has some very small yellowish marks about the insertion of the antennæ; these at the base and the palpi are fuscous black. The thorax has a short impressed channel, foveolate at its base. The elytra are entirely deep black, not shining; three nervures are visible, but not raised; and the humeral callus is only prominent at the shoulder.

3. **Photuris cyathigera.**

Præcedenti similis at minor; nigra, prothorace flavo, vitta discoidali ad basin latiore, marginem anticum non attingente, angulis posticis subacutis retrorsum productis. Long. 9–10 millim. ♂ ♀.

Mas abdominis segmento septimo fusco, medio roseo-tincto, apicali maculis minutis utrinque roseis.

Femina segmento apicali basi roseo.

Hab. MEXICO, Parada (*Sallé*).

Three specimens in Sallé's collection differ as above; the form of the thoracic vitta is something like an inverted cup, which has suggested to me the name. Although there are specimens of a species which I am disposed to refer to *P. collaris*, which have a black vitta of rather similar shape, yet none of them has the luminous segments so much infuscate, and I think on the whole that these will prove to be a distinct species. It is also allied to the species described by me as *P. mexicana*.

4. **Photuris mexicana.**

Photuris mexicana, Gorh. Trans. Ent. Soc. 1880, p. 108. ♂ ♀.

Hab. MEXICO (*Boucard, Sallé*).

There is a series of specimens in Sallé's collection which, though differing a little from my types of the above-named species, are hardly more than local varieties. In them the thorax is sometimes wholly or nearly entirely red, and the apical segment in the male dark; the elytra are also blacker, but yet are more fuscous than in *P. collaris*.

5. **Photuris collaris.** (Tab. III. fig. 15.)

Photuris collaris, Gorh. Trans. Ent. Soc. 1880, p. 107. ♂ ♀.

Hab. MEXICO, Cuernavaca (*Sallé*); GUATEMALA, Zapote (*Champion*).

The figure is that of a Zapote specimen, a rather small female.

The thorax is wholly orange-red and shining; the genital segment of the abdomen and the produced lamella of the plate preceding are black, the fifth and sixth segments wholly yellow and eburate. Very few specimens have been sent.

6. **Photuris lucidicollis.** (Tab. III. fig. 14.)

Photuris lucidicollis, Gorh. loc. cit. p. 107.

Hab. GUATEMALA, Dueñas, San Gerónimo, Capetillo (*Champion*).—*Var.* MEXICO, Cordova, Panistlahuca, Cuernavaca (*Sallé*); GUATEMALA, Panima, San Gerónimo, Capetillo, Dueñas (*Champion*); COSTA RICA.

The specimen figured is from Dueñas.

A variable species, both as regards size and coloration, the latter being either quite dark fuscous, with paler margins to the elytra, or pale with a central obscure pale vitta; this form has only occurred as yet at Dueñas. The luminous portion of the abdomen, however, seems constant, the apical excised segment in the female being usually infuscate, but sometimes quite yellow. The pale specimens resemble *Lucidota apicicornis*, and the darker ones *Photinus cinctellus*; but the generic characters, especially the form of the thorax, the structure of the abdomen in the male, and of the claws, will always suffice to prevent their being confounded.

Section II. B. *Male with external claw split; female with the claws simple.*

7. **Photuris amœna.**

Photuris amœna, Gorh. loc. cit. p. 108[1].

Hab. MEXICO, Vera Cruz, Tepansacualco, Cordova (*Sallé*); GUATEMALA, near the city, San Gerónimo[1] (*Champion*); NICARAGUA (*Sallé*).

A species with a very Photinoid aspect, and placed in that genus in M. Sallé's and, no doubt, in most collections; the external claw, however, is split in the male; and although in the female the head is not more exserted than in many *Photini*, in the male it is incapable of being withdrawn and is visible from above. The elytra are almost parallel, and the thorax of nearly the same width, with acute hind angles, the head black, the antennæ dark to the base. The body beneath is pale, excepting the basal segments of the abdomen. The series of specimens in Sallé's collection are paler than those from Guatemala.

Apparently a very common species and widely distributed.

8. **Photuris facialis.**

Fumeo-nigra, opaca, capite piceo, facie et infra testaceo, macula frontali minuta; antennis palpisque fuscis; prothorace rufo-brunneo, vitta mediana antice et postice latiore nigra, lateribus flavis; elytrorum margine, femoribus infra abdominisque segmentis tribus ultimis pallidis. Long. 8–9 millim. ♂ ♀.

Mas unguiculis externis fissis, segmento ventrali septimo apice producto, genitali magno, fusco.

Femina unguiculis simplicibus, segmentis ventralibus tribus apicalibus flavis, pygidio fusco.

Hab. GUATEMALA, Vera Paz, Sinanja valley, Senahu, Panima (*Champion*).

Nearly of the same size and not unlike *P. amœna*; distinguished, however, by the form of the thorax, of which the sides are here narrowed towards the front, by its colour, which is of a deep red-brown on the disk, and by the general dark fuscous-black opaque body and elytra. The head is black above, face below the insertion of the antennæ yellow, with a linear spot in front above the labrum. The basal joint of the antennæ is sometimes pale beneath. The thorax is punctured rather coarsely all over and opaque; a short obsolete channel on the basal half of the disk. The elytra are opaque, with pale margins not reaching their apex; in one specimen the suture is slightly paler; scutellum black, a character which will always separate this species from *P. amœna*.

Section III. *External claw split in both sexes.*

9. **Photuris pennsylvanica.**

Photuris pennsylvanica, De Geer, Ins. iv. p. 52, t. 17. f. 8; Cast. Hist. Nat. i. p. 268; Leconte, Synopsis, p. 337.

Lampyris versicolor, Fabr. Ent. Syst. Supp. p. 123.

Telephoroides vittigera, Mots. Etud. Ent. iii. p. 60.

Var. *Telephoroides lineatocollis* (Dej.), Mots. loc. cit. p. 59.

Hab. NORTH AMERICA, Canada, United States.—MEXICO, Tuxtla, Cordova; GUATEMALA, Capetillo, Zapote, Sinanja valley, Purula, Sabo, Chacoj, Cubilguitz (*Champion*).

Var. latior, pallidior, elytris striga pallida inter vittam humeralem et suturam, alteraque ante marginem.—*Gorh. Trans. Ent. Soc.* 1880, p. 110 (β).

Hab. MEXICO, Cordova, Puebla, Oaxaca (*Sallé*); GUATEMALA (*Sallé*), San Juan, Chacoj, Purula, Panima, Zapote (*Champion*); NICARAGUA, Chontales (*Janson*).

Var. tota fere pallida.—*Gorh. loc. cit.* (ε).

Hab. COSTA RICA; PANAMA; SOUTH AMERICA; GUIANA.

Var. Gorh. loc. cit. (γ et δ).

Hab. ANTILLES.

One of the most abundant and widely dispersed of the Lampyridæ, distributed over the whole of the northern continent below latitude 45° north, and even reaching the southern continent. It is probably chiefly to this species that those brilliant appear-

ances described by travellers on the Pacific railway, in passing damp savannas, as "showers of light" are to be attributed.

In a species of such wide range a good deal of allowance must be made for variation; and among the great number of specimens which I have examined there are several tolerably well-marked forms, mainly differing in the amount of pigment in the body and elytra. The varieties β and ε are more robustly built than others, and do not seem to occur in the colder regions.

10. **Photuris fruticola.**

Photuris fruticola (Eschscholtz), Mots. Etud. Ent. iii. p. 60.
Photuris trivialis, Bohem. Res. Eugen. p. 77 (1858).

Hab. MEXICO, Cordova (*Sallé*); GUATEMALA, Aceytuno, (*Salvin*), Zapote, Sinanja valley, Senahu, Sabo, Purula (*Champion*).—SOUTH AMERICA, Brazil, Monte Video.

Var. α. Elytris vitta ab humero ad apicem fere producta, pallida.

Hab. GUATEMALA, Cerro Zunil, Las Mercedes, San Gerónimo, Zapote.

Var. β. Capite testaceo, corpore paulo minore.

Hab. MEXICO, Cordova (*Sallé*).

Head black, or slightly tinged with pitchy upon the crown; thorax pale horny yellow, rather shining, very rarely darker on the disk, scarcely punctured; elytra dark fuscous, with the suture and lateral margin pale, clothed with a fine yellow pubescence; scutellum yellow; coxæ, trochanters, and thighs (excepting their apices) pale testaceous, the remainder of the legs dark. Breast and first four segments of the abdomen dark fuscous, the apex of the third, and often nearly the whole of the fourth, are pale; in the male the fifth and six plates are long and eburated, with their margins widely emarginate in an angular manner. The seventh plate in the male has a lanceolate lobe, covering entirely the genital eighth plate, and is always pale. The antennæ and palpi are dark. In fine specimens the underside of the bilobed fourth joint of the tarsi is golden-haired.

The variety β, with the head yellow, is scarcely different from *P. frontalis*, Leconte, which occurs in Texas. The thorax, however, is not coarsely punctate, as in my examples of that species. At present I have only seen one example with a dark disk to the thorax, which is from Sabo.

In colour this species is very like *Lucidota osculatii* and *L. limbata*.

Photuris brunnipennis, Jacq. Duval (in Sagra's Hist. Cuba, vii. p. 39; Gorh. Trans. Ent. Soc. 1880, p. 111), may be only a variety of the same.

11. **Photuris mollis.** (Tab. III. fig. 19, ♂.)

Photuris mollis, Gorh. Trans. Ent. Soc. 1880, p. 111.

Hab. Guatemala, Chacoj, Zapote (*Champion*).

Var. capite testaceo, prothorace fortius sparsim punctato.

Hab. Mexico, Tuxtla (*Sallé*).

The specimen figured is a male from Zapote.

Smaller than *P. fruticola*, and with the disk of the thorax infuscate; the scutellum also fuscous.

The specimens in Sallé's collection are like *P. frontalis* in the yellow head and punctuation, but smaller in size, and with the disk of the thorax infuscate.

12. **Photuris lugubris.**

Elongata, aterrima, subopaca, prothorace flavo nitido. Long. 11–14 millim. ♂ ♀.
Mas segmentis ventralibus tribus ultimis flavis, quinto et sexto longis eburatis.
Femina segmentis tribus ultimis flavis.
Var. α femoribus testaceis, coxis anterioribus et intermediis pallidis.
Var. β capite, scutello et mesosterno flavis, pedibus brunneis basi testaceis.

Hab. Mexico, Oaxaca, Juquila (*Sallé*).—Var. α. Guatemala, Purula (*Champion*).—Var. β. Mexico (*Sallé, coll. Sturm*).

The coloration of this species is common to several Coleoptera from the same region, and is so precisely repeated in a species of Telephoridæ that they are usually confounded. It is also almost exactly that of *P. funestis*, Gorham, a species occurring in Colombia and Ecuador; from the latter the *three* luminous segments at once distinguish it, *P. funestis* belonging to a section in which one segment (the fifth) in the female and two in the male are white. I should have been inclined to give specific value to the variety β, but that the variety α is as nearly as possible intermediate, and would in that case have also to be separated. In the male the fifth and sixth segments are angularly emarginate, but not always conspicuously so; the apical segment is cut out on each side, so as to form a lanceolate lobe in the middle; but this is not often very distinct, so that the best distinction is the large eyes and the lengthened, and smooth, shining yellow fifth and sixth plates.

A further point of distinction between this and my *P. funestis* is that the thorax here is more elongate, narrowing to the front, while in the latter it is almost semicircular.

13. **Photuris simplex.**

Flava; antennis, palpis, ore, tibiis tarsisque infuscatis, prothorace nitido vix punctato. Long. 13 millim. ♀.

Hab. Costa Rica, Volcan de Irazu, Rio Sucio (*Rogers*).

The plain ochraceous-yellow colour of this species sufficiently distinguishes it, the only

parts which are dark being the antennæ (of which, however, the basal joint is partly yellow), the mouth-organs, which are dark pitchy, the tarsi, which are always fuscous, and the tibiæ, which, however, are sometimes yellow.

At present I have only seen four examples, all females. A fifth specimen differs in having the head black on the crown and the breast fuscous, and may possibly belong to another species.

14. **Photuris scapularis.**

Flava; capite, elytrorum angulo humerali, tibiis tarsisque nigris, antennis et palpis fuscis. Long. 10–11 millim. ♂ ♀.

Mas segmentis ventralibus quinto et sexto emarginatis, albis, septimo apice acuto.

Femina mari simillima, capite et oculis minoribus segmentoque apicali obconico mox distinguenda.

Hab. GUATEMALA, Cerro Zunil, (*Champion*).

Allied to *P. simplex*, but readily separated by the black head and shoulders.

The thorax is shining, obsoletely punctured; the elytra are also punctured, and more roughly so at the shoulders. The tarsi have the fourth joint, and the others sparingly, clothed with yellow velvety pile.

Only two specimens have yet been sent by Mr. Champion.

AMYTHETES.

Amythetes, Gemm. Munich Cat. p. 1649; Gorh. Trans. Ent. Soc. 1880, p. 97.
Amydetes, Hoffmansegg, Illiger's Mag. vi. p. 342; Mots. Etud. Ent. 1853, p. 49.

One of the most remarkable genera in the family, having the extraordinary number of thirty-five to forty joints to the antennæ, with those from the third to the last but one bearing each a flabellate branch. The three apical segments are evidently highly luminous in the two species I have seen. It is a New-world genus, the species at present recorded being five or six in number, from Brazil and Peru. It has only been met with on one occasion in Central America.

1. **Amythetes plumicornis.**

Lampyretes plumicornis, Latr. in Humb. et Bonpl. Rec. d'Obs. Zool. i. p. 136, t. 16. f. 4 (1811).
Amydetes plumicornis, Cast. Hist. Nat. i. p. 264.

Hab. MEXICO.

A single specimen taken near the town of Valladolid.

Subfam. *PHENGODINI.*

The very singular and anomalous insects which form this section have been placed by most authors among the Lampyridæ. Lacordaire, it is true, places them at the head

of the Telephoridæ, without, however, as I think, sufficient reason. Leconte (Class. of Col. of N. Am. i. p. 185) casts some doubt upon their reputed luminosity, but admits he had never seen a living specimen. The two species known to him have the body wholly yellow; but in some other species which have dark bodies, e. g. *Phengodes pulchella*, Guérin, the two penultimate segments have in their centre a spot, white, shining, and as obviously luminous as in any of the Lampyridæ.

Phengodes is the representative of a family which combines the characters of the Lampyridæ with those of the Lymexylonidæ, and slightly with those of the Telephoridæ. The head, the eyes, and thorax and elytra show affinity with those remarkable genera *Dioptoma* and *Ochotyra*, Pascoe, and with some allied species from China, of which the true position is not determined, and, taken in combination with those which are intermediate in form, with *Atractocerus*. There is not so much diversity from *Luciola* or *Amythetes* as from any of the true Telephoridæ; and in a synthetic type such as this is, I do not think too much weight should be attached to the form of the palpi or the insertion of the antennæ.

PHENGODES.

Phengodes, Hoffmansegg, Ill. Mag. vi. p. 341 (1807).

1. **Phengodes bimaculata.** (Tab. III. fig. 23.)

Nigro-fusca; prothorace, scutello et elytris ferrugineis, his obsolete bicostatis, macula subscutellari fusca, thoracis disco profunde canaliculato, sparsim sat fortiter punctulato; alis fuscis, nervulo marginali subferrugineo. Long. corporis 17–20 millim.

Hab. NICARAGUA, Chontales (*Belt*).

This fine *Phengodes* is larger than my specimens of either *P. plumosa* or *P. fusciceps*, Lec., and differs from both in the colour of the body and appendages, as well as by the puncturing and channel of the thorax. Head black, except the front between the base of the antennæ and underside and the apices of the mandibles, which are pitchy red. Antennæ fuscous; basal joint of the same dark colour as the rest. Thorax transverse, the lateral margins compressed and thin, and hence paler in colour than the central part; the latter distinctly but sparingly punctured, with a deep channel, reaching neither the front nor the base, and with a shallow wide fovea on each side at the base, and a second nearer the front; scutellum punctured, shining, with its apex roundly truncate. Elytra meeting round the scutellum, thence narrowed and recurved, their total length being about a quarter of the length from their base to the apex of the abdomen. Two raised nervures, one passing through the fuscous spot, the other bordering it externally. Excepting the spot, they are, with the anterior coxæ and base of the femora and centre of the metasternum, ferruginous. The posterior legs are quite black. The abdomen is dark fuscous, and shows no trace of any luminous portion.

I cannot ascertain the sex of either of the two specimens, which are all that have

been captured. The seventh ventral plate is wide, subtruncate, raised in the middle, from which proceed, between it and the dorsal plate, both a superior and an inferior short styliform lobe or plate.

This insect is, perhaps, not luminous.

2. **Phengodes fusca.**

Nigra; ore pedibusque basi piceis; capite, prothorace et scutello rugose crebre punctatis; abdominis segmentis sexto et septimo ventralibus medio albis, nitidis. Long. 14 millim.

Hab. Costa Rica, Rio Sucio (*Rogers*).

This species is altogether more like the species which I have identified with *P. pulchella*, Guérin. It differs from that in being darker and more roughly punctured; the thorax is narrower, and without the thin expanded margin of the last species; the elytra are longer in proportion and not so reduced at their tips. The antennæ are more like those of *P. pulchella* (though broken in the unique specimen sent by Rogers); that is to say, the filaments, which are longer than in *P. bimaculata*, curl at their ends in a similar way, probably after death. But it is more especially in its apparent luminosity that this species shows affinity to the Colombian insect; and of this I feel no doubt after examining the diaphanous segments.

3. **Phengodes nigricornis.**

Ferruginea; antennis, palpis, pectore pedibusque nigris; prothorace crebre sat fortiter punctato, nigro variegato, medio obsolete breviter canaliculato, scutello nigro apice ferrugineo; abdominis segmentis singulis supra et infra nigro maculatis. Long. corp. 13–14 millim.

Hab. Mexico, Parada (*Sallé*).

Head dark rusty red, coarsely and confluently punctured, its base with irregular rugæ; eyes of moderate size; mandibles pitchy. Antennæ almost as long as the body, entirely black, as well as the palpi. Thorax as long as wide, with rounded sides, a little constricted in front, subopaque owing to the very close puncturing; the marginal edge very little expanded, and the hind angles acute but not much produced. The disk bears a fine longitudinal impression deep in the centre. The elytra are entirely red. The legs black, only the anterior coxæ and the femora are marked with red at their bases. The abdomen is not so prolonged in either of the two specimens which I refer to this as in *P. plumosa* or *P. bimaculata*; but each segment has the central portion of the base black; on the dorsal surface this marking is reduced to two spots, excepting on the apical and subapical plates.

The species of this genus are evidently variable in the colour of most of their organs. The basal joint of the antennæ and the elytra seem to be fairly constant; and the form of the thorax and its puncturing seem to justify me in separating this species from the one which follows.

4. **Phengodes bipennifera.** (Tab. V. fig. 1, var. *α*.)

Ferruginea, nitida; antennis, articulis duobus basalibus exceptis, elytrorumque apicibus fuscis; prothorace disco nitido, obsolete canaliculato, subtiliter punctulato, angulis posticis acutis, productis. Long. 13 millim.

Var. *α*, occipite, prothoracis disco, pectore et scutello, abdomine etiam maculis nigris.

Var. *β*, palpis et pedibus, basi excepta, nigris.

Hab. MEXICO, Durasnal, Tuxtla, Cordova (*Sallé*); GUATEMALA, Chiacam, Senahu, Chacoj (*Champion*).

The figure represents the specimen from Durasnal.

Allied to *P. plumosa*, but, in addition to its smaller size, distinguished by the longer and darker antennæ, the channel on the disk of the thorax, and by the latter being distinctly punctured. It is evidently variable in colour; but the yellow predominates. In the five specimens which I assign to this species, one has the head and thorax and body partly infuscate (var. *β*); this is from Senahu; while one from Durasnal has the palpi and legs black, excepting the coxæ and femora (var. *α*), the body in this one being wholly ferruginous.

The wings are fuscous, with darker marginal nervures, and are as long as the body. The apices of the elytra, and in some specimens the inner margins, are blackish. The thoracic channel is usually divided into two portions, one near the front margin, one on the disk; but these are at other times connected by a very fine impressed line.

5. **Phengodes minor.**

Nigra, capite et prothorace rufo-ferrugineis, pedibus basi pallidis. Long. 8½–9 millim.

Var. capite prothoracisque lateribus nigris.

Hab. GUATEMALA, Purula.—*Var.* Cerro Zunil, Senahu (*Champion*).

This is the smallest *Phengodes* I have yet seen; and it is very easily distinguished by its dark colour, excepting the head and thorax, which are usually clear, dark, rusty red. In one specimen captured on Cerro Zunil, and which has the head and sides of the thorax black, the basal joint of the antennæ is reddish; but in all the other specimens of a considerable series taken by Mr. Champion it is black. They are nearly equal in length to the body. The maxillary palpi seem more acuminate than in other species of this genus. The thorax is punctulate, shining, and has a longitudinal impression, obsolete in front and behind.

Fam. TELEPHORIDÆ.

The establishment of this as a separate family is due to Lacordaire—previous authors, and, indeed, many still (including Leconte in his 'Classification of the Coleoptera of North America'), regarding it, with the Lycidæ and true Lampyridæ, as only of subordinate rank. In addition, however, to the manifest unsuitableness of the term *Lampyridæ* for the three sections taken together, the characters which separate these insects are trenchant, and entitle them to the rank of a family equally with the Melyridæ and

Cleridæ. These are the different modes of insertion of the antennæ, which are always separated by a space at their bases, and the absence of luminosity.

Taken as a whole, the Telephoridæ are pretty uniformly distributed over the whole globe, but may be subdivided into groups which are more or less characteristic of the latitude they inhabit. Thus the Chauliognathini, which have the males furnished with a clasping anal segment largely developed, are confined to the tropics of America; while the Telephorini proper are essentially the form of the northern temperate zone.

The Silini are the most widely spread of the subfamilies, some remarks upon which will be found in their proper place under the genus *Silis*.

Subfam. *CHAULIOGNATHINI.*

DAIPHRON.

Genus *Chauliognatho* affine; antennis latis, interne serratis, articulo tertio obconico, quarto multo breviore et minore plerumque distinctum.

Caput antice productum; antennæ compressæ, basi et apice minus latæ, articulo primo valido, secundo perbrevi ut in *Chauliognatho*, tertio obconico quam quartus duplo minore. Palpi ut in *Chauliognatho*. Prothorax subquadratus, limbo vix reflexo. Elytra aut postice ampliata, aut parallela. Abdomen maris segmentis septem, septimo ventrali elongato, fortiter convexo; feminæ transverso, inæquali, medio exciso. Tarsorum articulus primus secundo paulo longior.

Two types of insects are included in the group for which I propose this genus; in the first the elytra are widened posteriorly, giving the species a very *Lycus*-looking form, which their ochreous colouring relieved by black fasciæ or apices enhances. In the second the elytra are parallel, much as in *Chauliognathus*, but the wide antennæ and almost unmargined thorax give them a peculiar facies; in these species the head is not so much produced, and it is always black ornamented with three yellow lines The genus is almost peculiar to Central America. I have, however, one species from Santa Catharina and one from Ecuador, both, I think, undescribed; but one is labelled "*jugeletii*," a name from Dejean's Catalogue.

Section I. *Elytra expanded towards the apex.*

1. Daiphron lyciforme. (Tab. V. fig. 2.)

Ferrugineum; occipite, antennis, palpis, thoracis vitta, scutello, pedibus (basi excepta), pectore, abdominis lateribus et segmento apicali, elytrorumque apice nigris. Long. 17 millim. ♂ ♀.

Hab. Guatemala, Cubilguitz (*Champion*), Chinantla (*Sallé*); Nicaragua, Chontales (*Belt*).

The figure is drawn from a Chontales female. Head yellow in front and beneath, crown black, opaque; antennæ of the male rather more than half as long as the body, flat and a little serrate. Thorax rather wider than long, not punctured, but opaque with a waxy look; hind angles distinct, front angles obtuse and not distinct; central vitta narrow. Elytra almost twice the width of the thorax at the humeral callus, which is distinct, and continued as a fold to the middle of the elytra; the sides widen till the

commencement of the black part, from which point they are rounded to the suture. About one third of the elytron at the apex is black; but this is subject to variation, the Cubilguitz specimen having less black, and the division between this and the ochreous part not so sharply defined.

The structure of the apical segment in the male is similar to that of *Chauliognathus*; the seventh segment forms a convex valve-like clasper, the pygidial plate being laterally compressed. The colour of the ventral plate affords good specific distinctions. The female has the sixth plate wide, with its apical margin sinuous and acutely excised in the middle, a small seventh segment being also present. Four specimens are all that I have seen.

2. **Daiphron ochraceum.**

Ochraceum vel ferrugineum; macula occipitali, antennis, palpis, tibiis et tarsis, scutello, abdominis lateribus et apice nigris, femoribus apice infuscatis. Long. 17–20 millim. ♂ ♀.

Hab. GUATEMALA, Cubilguitz, San Juan, Teleman, Senahu (*Champion*).

Of the same size and similar in form to *D. lyciforme*. The antennæ are in the male almost equal to the body in length. The thorax has no vitta; but a small double fossa in front of the scutellum is infuscate. Both the front and basal margin both in this species and in *D. lyciforme* are sinuous and faintly emarginate in the centre.

3. **Daiphron crassicorne.** (Tab. V. fig. 24.)

Nigrum; prothoracis lateribus, elytrorum basi et capite ante antennas rufis; antennis latis, ad apicem attenuatis, serratis. Long. 10 millim. ♀.

Var. Pedibus basi, pectore, capite et prothorace rufis, hoc antice nigro-notato. Long. 9 millim. ♂.

Hab. GUATEMALA, Zapote (*Champion*).

The male is the paler of two specimens taken by Mr. Champion, the one shown in our Plate being the female. In the former the head is entirely yellow beneath, the crown infuscate; the thorax is subquadrate, a little narrowed in front, with a shallow wide impression near the base, which is pale fuscous, and a dark spot near the front margin. The elytra widen from the base to the apex, the black portion occupying half their length in the male and rather more in the female; in the latter the suture and scutellum are fuscous. The edge of the black is indented in both specimens. The antennæ are formed as in other species of this genus, but are wider, and their middle joints are more triangular than in any; the third joint is very much smaller than the fourth, not being half as long and much less expanded; joints 4–8 are wide, somewhat cup-shaped; joints 9, 10, and 11 gradually decreasing in width. The legs in the male are yellow below the apices of the femora; in the female they are quite black.

A species of Longicorn of Mr. Bates's genus *Tethlimmena* so precisely resembles this insect as readily to escape detection, both the colour, size, and general form (including that of the antennæ) being similar; even the projecting point on the edge of the black apical part is the same in each. They were not, however, taken in company.

Section II. *Elytra with the sides parallel or narrowed towards the apex.*

4. **Daiphron proteum.** (Tab. V. figg. 14, 15, 16.)

Nigrum; capite infra rufo, supra vittis tribus rufis; prothorace quadrato angulis rotundatis, rufo, plerumque nigro-vittato; elytris rufis vel nigris, vel nigro rufoque fasciatis vel dimidiatis; pedibus nigris, basi sæpe rufis. Long. 10–14 millim.

Var. α. Elytris rufis, pedibus nigris.
Var. β. Elytris rufis, pedibus basi rufis.
Var. γ. Elytris rufis fascia lata apiceque nigris, pedibus nigris, basi rufis.
Var. δ. Elytris nigris, humeris et fascia mediana rufis, pedibus vel nigris vel basi rufis.
Var. ε. Elytris basi rufis, sutura prope scutellum et apice late nigris, pedibus vel nigris vel basi rufis.
Var. ζ. Elytris nigris, humeris tantum rufis, vel totis nigris, pedibus nigris.
Var. η. Prothorace læte rufo, haud vittato, elytris totis nigris, pedibus vel nigris vel basi rufis.

Hab. Var. α. Mexico, Cordova (*Sallé*); Guatemala, Capetillo, San Gerónimo, Panzos, Cahabon, Cubulco, Teleman.—Var. β. Mexico, Oaxaca, Cordova (*Sallé*); Costa Rica, Volcan de Irazu (*Rogers*).—Var. γ. Mexico, Oaxaca, Cordova (*Sallé, Boucard*); Guatemala, Capetillo, Chacoj, Senahu, Teleman (*Champion*).—Var. δ. Mexico, Cordova, Vera Cruz, Tuxtla (*Sallé*); Guatemala, Capetillo, Zapote (*Champion*).—Var. ε. Mexico, Cordova, Tuxtla (*Sallé*); Guatemala, Capetillo, Dueñas, Chiacam (*Champion*).—Var. ζ. Mexico, Orizaba (*Sallé*); Guatemala, Capetillo, San Gerónimo, Senahu, San Isidro (*Champion*).—Var. η. Mexico, Tuxtla (*Sallé*); British Honduras, river Sarstoon (*Blancaneaux*); Guatemala, Panzos, Teleman, San Gerónimo (*Champion*).

Figure 14 of the Plate represents a female of var. γ, from Capetillo; figure 15, a female of var. α, from San Gerónimo; figure 16, a male of var. ε, from Capetillo.

A singularly variable or polymorphic species. The head is very constant in colour, as is the black body. Some of the varieties appear to be tolerably distinct segregated forms, such as var. η. Var. γ is the form mimicked by *Photuris fasciata*, mentioned at page 56 of this volume.

CHAULIOGNATHUS.

Chauliognathus, Hentz, Trans. Am. Phil. Soc. new ser. iii. p. 460 (1830).

Chauliognathus is peculiarly a new-world genus of Telephoridæ. It is pretty evenly distributed over the whole of both North and South America; but the species found in the temperate parts are more feebly developed than those of the tropics. The genus is remarkable for the possession of a thread-like lobe to the maxillæ, which, according to Leconte, can be protruded from the mouth when alive. Between thirty and forty species have been already described.

Section I. *Elytra ample, covering the abdomen.*

1. **Chauliognathus rex.**

Niger; prothorace elytrisque ochraceis, his triente apicali, illo puncto discoidali, nigris; abdominis limbo laterali, segmentis dorsalibus apiceque flavis. Long. 20–23 millim. ♂ ♀.

Hab. Mexico, Capulalpam (*Sallé*); Guatemala, Purula, Sabo (*Champion*).

Allied to *C. heros*, Guérin, from which it differs in being larger in average size, rather more shining; the yellow parts are orange-red instead of pale yellow; the black portion of the elytra does not exceed the apical third in any of the specimens from Central America. The ventral portion of the abdomen is blacker; only the margins of the segments externally and laterally, and the apical valvular plate in the male with the short preceding segment (which is only present as a lobe on each side), and in the female the two apical segments, are yellow. The dorsal surface is yellow, whereas in *C. heros* this part is for the most part black. About a dozen specimens were taken by Mr. Champion.

2. **Chauliognathus nitidicollis.**

Niger; prothorace elytrisque flavis, illo nitido, puncto discoidali sat magno nigro; abdominis segmentis singulis marginibus lateralibus et apicalibus flavis, apice ipso flavo. Long. 18–20 millim. ♂ ♀.

Hab. Costa Rica, Volcan de Irazu, Cache, Rio Sucio (*Rogers*).

This species is more parallel (the elytra not being widened behind) than the last. The head, breast, basal six segments of the abdomen, and appendages are black, only the margins of the abdominal ventral plates and its apical segments being yellow.

The thorax is very smooth and shining; it is quadrate, inclined to be transverse. The elytra are somewhat rounded at their apices, leaving the sutural angle open.

3. **Chauliognathus dimidiatus.** (Tab. V. fig. 3.)

Chauliognathus dimidiatus, C. Waterhouse, Trans. Ent. Soc. 1878, p. 330.

Hab. Mexico, Cordova (*Sallé*); Nicaragua, Chontales (*Janson*, *Belt*); Costa Rica, Volcan de Irazu (*Rogers*).

The figure is taken from a male specimen from Chontales.

This species is liable to vary in the form of the thorax, which is more oblong in some specimens: in one from the Volcan de Irazu the disk of the thorax is infuscate; and in two males taken by Mr. Belt at Chontales the valvular apical segment of the abdomen, as well as the 5th, is nearly black. In other specimens the abdomen is nearly black beneath, with the apical plate in the male yellow and very smooth and shining.

4. **Chauliognathus sodalis.** (Tab. V. figg. 8, 9.)

Chauliognathus sodalis, C. Waterhouse, Trans. Ent. Soc. 1878, p. 326[1].
Callianthia grandis (Sturm coll.).

Hab. Mexico (*Sallé*), Oaxaca[1] (B.M.).

The figures are from specimens from Sallé's collection, both females; fig. 9 represents the var. 2 of Mr. Waterhouse's description. There were also specimens of his var. 1, taken by Sallé; but I do not observe that they differ materially in form. The abdomen

is wholly black beneath in all these specimens; the pygidial plate, which is very narrow, and the apical margins of some of the preceding segments on the dorsal surface are yellow. It is one of the largest species of Telephoridæ, being sometimes an inch in length.

5. **Chauliognathus jucundus.** (Tab. V. fig. 5, ♀).

Niger; subopacus, prothoracis margine elytrorumque plaga humerali ochraceis; abdominis segmentis ventralibus marginibus apicalibus tenuissime flavis. Long. 14–17 millim. ♂ ♀.

Hab. GUATEMALA, San Gerónimo, Cubulco (*Champion*).

The figure represents a female from San Gerónimo. Head and thorax scarcely shining, the latter as wide as long or rather wider, all the angles rounded, the base sinuous and narrowly yellow, the sides and front more widely so. Elytra dull black, finely alutaceous; a sharply defined yellow splash occupies the shoulder, and extends nearly or quite half-way down the elytron, but is then suddenly reduced to the extreme limb or thickened margin; and this is sometimes, with the apex itself, very finely yellow. The underside is entirely black, with the exception of the apices of the ventral plate, which are narrowly pale.

Among a very considerable series of specimens taken by Mr. Champion, all, with one exception, are females. The single male does not differ much in colour or size from many females, nor are the antennæ perceptibly longer; the apical ventral segment is black, the apical dorsal yellow in both sexes.

6. **Chauliognathus tricolor.** (Tab. V. fig. 6.)

Niger; prothoracis margine elytrorumque plaga humerali rufis, sordide carmineis, apice late flavo, limbo miniato. Long. 15–17 millim. ♀.

Hab. NICARAGUA, Chontales (*Belt*, *Janson*).

Evidently allied to *C. jucundus*, but to be distinguished by its peculiar coloration; the humeral stripe and thoracic margin are of a rosy red; and this colour on the elytra merges on the margin into the pale apical portion, leaving as it were the discoidal part of the united elytra fuscous black.

The form of the insect is almost the same as that of *C. jucundus*: the elytra are of the same width as the thorax at the base, thence they widen gradually to the middle, and are then narrowed towards the apex. When closed, the sutural angle of the elytra would be a little open, each elytron having its apex rounded. Only three specimens have been sent.

7. **Chauliognathus tabulatus.**

Niger; prothorace elytrisque testaceis, his macula scutellari alteraque magna communi pone medium, illo disco nigris; abdominis segmentis ventralibus flavo marginatis. Long. 15–17 millim. ♂ ♀.

Hab. COSTA RICA (*coll. Gorham*); NICARAGUA, Chontales (*Belt*).

Of the same form as the two preceding species; the elytra are of a uniform straw-yellow, with the discoidal black portion broken into a scutellar spot, and a large irregular and varying patch usually behind the middle, but sometimes produced forward so as nearly to join the scutellar spot. The posterior patch or spot is more or less quadrangular in form; it does not reach the margin.

In the male the valvular apical plate is black at the base and yellow at its apex. This may be an extreme form of *C. tricolor*, the specimen from Nicaragua being in some respects intermediate. Till any better characters are found I rely upon the dull yellow colour of the elytra, and the divided colour of the male apical segment.

8. **Chauliognathus janus.** (Tab. V. fig. 4, ♂.)

Chauliognathus janus, C. Waterhouse, Trans. Ent. Soc. 1878, p. 329[1].

Hab. Mexico, Panistlahuaca (*Sallé*); Guatemala, San Gerónimo (*Champion*).—South America; Ecuador[1], Sarayacu (*Buckley*).

The figure represents a male from San Gerónimo. This species is very variable in the extent of the yellow fascia, which is occasionally wanting, or interrupted at the suture; while at other times it occupies the whole base excepting a very narrow portion, and then affords grounds for doubt whether the species can be separated from *C. tripartitus*, Chevrolat.

The abdomen is yellow, each segment before the apical one with a black spot on each side, sometimes united; in the female the fifth segment is sometimes quite black.

9. **Chauliognathus tripartitus.**

Chauliognathus tripartitus, Chevrol. Col. Mex. Cent. ii. fasc. 5, no. 106[1]; Waterh. loc. cit. p. 327[2].

Hab. Mexico[1], Cordova (*Sallé*), Jalapa (*Höge*); Guatemala[2], San Gerónimo (*Champion*).

The abdomen in this species is similar to that of *C. janus*; in the male the ventral segments are often entirely yellow, or only the two before the valvular plate are spotted.

10. **Chauliognathus distinguendus.**

Chauliognathus distinguendus, C. Waterhouse, Trans. Ent. Soc. 1878, p. 328.

Hab. Mexico, Oaxaca (var. *B.M.*); Guatemala.

11. **Chauliognathus togatus.** (Tab. V. figg. 10, 11.)

Chauliognathus togatus, C. Waterhouse, Trans. Ent. Soc. 1878, p. 326[1].

Hab. Mexico, Oaxaca[1] (*B.M.*), Guanajuato (*Dugès, coll. Sallé*).

The figures represent both males in Sallé's collection from Guanajuato.

This very singular species is of a rich brick-red above; and usually the head, breast,

and appendages are black. It is, however, variable. The breast and base of the thighs and coxæ are red in some examples. The black on the thorax varies from the entire disk to three spots arranged transversely in a row, and that on the elytra from two large spots to an entire fascia, while in one example the apical third is black, with a minute red spot at the sutural angle.

The valvular plate of the male is always black. Two examples from Sturm's collection have the elytra entirely red.

12. **Chauliognathus signatus.**

Chauliognathus distinguendus, var. ?, C. Waterh. Trans. Ent. Soc. 1878, p. 328.
Callianthia signata (Sturm coll.).

Niger; *C. togato* latior et præsertim brevior; prothorace elytrisque pallide flavis, his basi et macula magna rotunda pone medium nigris, illo punctis tribus; abdominis segmentis flavo marginatis. Long. 17 millim. ♀.

Hab. Mexico (*coll. Sturm*).

The different form and colour, and the black base of the elytra and differently coloured abdomen, indicate a distinct species from *C. togatus*, to which it is allied. It is very near to *C. distinguendus*, var. ?, Waterh. The number of spots on the thorax seems liable to vary: one specimen has only two.

13. **Chauliognathus nigrocinctus.** (Tab. V. fig. 12.)

Niger; ore, abdomine (segmentis basi nigris), metasterni pleuris et thorace flavis; elytris stramineis, his fascia tenui, illo macula discoidali transversa nigris. Long. 13–15 millim. ♂ ♀.
Var. elytris basi nigris (*coll. Sturm*, ♀).

Hab. Mexico, Guanajuato (*Dugès, coll. Sallé*).

The larger examples of this species only equal in size the smaller of *C. togatus*. It is of the same parallel form as that; and the thorax is of similar shape. The transverse mark on the disk is not separated into spots in any one of the six specimens before me; but in the variety there is a punctiform spot at each end of it.

The valvular plate in the male is blackish at the base, fading into testaceous at the apex. The abdominal ventral plates are yellow, with black bases. The antennæ are inserted in yellow spots; and the mandibles are yellow.

14. **Chauliognathus bilineatus.** (Tab. V. fig. 13.)

Flavus; capitis basi et macula transversa occipitali, prothorace lineis duabus, elytris puncto pone medium, antennis, palpis, parapleuris, segmentis ventralibus singulis maculis quatuor, tibiis tarsisque nigris. Long. 17–19 millim. ♀.
Var. abdomine segmentis ventralibus immaculatis, puncto elytrorum majore. Long. 14 millim. ♂.

Hab. Mexico (*coll. Sturm*).

This species may be well recognized by its elongate form and general ochraceous-yellow colour. The yellow head with only the gular portion and a curved mark between

the eyes is also characteristic. The elytral spot is very small, and in the specimen figured is obsolete. The extreme apex of the femora is black. The antennæ are half as long as the body in the female, rather more in the male.

There are four specimens only of this in Sallé's collection.

Section II. a. *Elytra more or less shortened, or lancet-shaped at their extremity.*

15. **Chauliognathus pallidus.**

Chauliognathus pallidus, C. Waterh. Trans. Ent. Soc. 1878, p. 330.

Hab. MEXICO, Toxpam (*Sallé*); GUATEMALA, Sinanja valley, Panima, Zapote (*Champion*); NICARAGUA, Chontales (*Janson*).

With this species we commence a section of the genus characterized by their long legs and frequently shortened elytra. In the present species these are shorter than the abdomen by about one fifth of their total length; their apex is lancet-shaped, and the underwings are exposed. The antennæ are as long as the body, black. The legs are black, with the exception of the coxæ, trochanters, and a very small portion of the base. The valvular plate in the male is, with the whole of the underside, yellow.

Mr. Waterhouse's type has the femora not so fully black as those now before me, but, I think, does not differ from them specifically. His variety is, I think, a distinct species.

16. **Chauliognathus œdemeroides.**

Flavus; elytris macula basali, antennis, palpis, femorum apicibus, tibiis tarsisque nigricantibus; elytris corpore vix brevioribus. Long. 15–17 millim. ♂ ♀.

Hab. MEXICO, Toxpam (*Sallé*); BRITISH HONDURAS, Rio Hondo (*Blancaneaux*); GUATEMALA, near the city, Aceituno, Cahabon, Chacoj, Panzos, San Gerónimo, Purula (*Champion*); NICARAGUA, Chontales (*Belt*, *Janson*), Chiriqui.

Head moderately long, but not so produced as in *C. pallidus*. Palpi black, with pale articulations. Thorax elongate quadrate; margins little reflexed. Elytra pale yellow or ochraceous, usually opaque, not so conspicuously shortened as in *C. pallidus*, and with at least a portion, generally the whole, of their base black. This is a smaller and less robustly made species than *C. pallidus*, the femora are constantly paler, the elytra longer and of a softer texture. It scarcely differs from *C. discus*, Leconte, except in not having the thorax so orbiculate and in the black base of the elytra.

17. **Chauliognathus fuscescens.**

Pallide testaceus vel ochraceus; antennis, palpis, tibiis tarsisque fuscis; capite et thorace etiam interdum infuscatis. Long. 12–15 millim. ♂ ♀.

Hab. MEXICO, Cordova, Oaxaca, Toxpam (*Sallé*); GUATEMALA, Sinanja valley (*Champion*); NICARAGUA (*Sallé*).

Head with the eyes very prominent, not much produced, but constricted behind; antennæ frequently as long as the body. Thorax with three impressions—two lateral, one in the centre near the base, divided by a short and somewhat obsolete keel; it is more quadrate than in *C. exsanguis*, which it otherwise very much resembles. The elytra nearly conceal the wings; they have rarely any trace of black at their bases. The valvular plate in the male is often fuscescent, but only faintly so. In one specimen only the whole thorax is fuscous.

18. **Chauliognathus exsanguis.**

Pallide testaceus; antennis palpis et ore nigris, tibiis et tarsis plus minusve infuscatis. Long. 10–11 millim.

Hab. GUATEMALA, Cubilguitz, Lanquin, Panima, Panzos (*Champion*).

Smaller than *C. fuscescens*, and with the elytra more abbreviated; the thorax is also narrower and not uneven, although there are faint indications of a basal depression. The legs are paler, in some examples only showing a tendency to become fuscous. The antennæ hardly exceed half the body's length.

19. **Chauliognathus lituratus.**

Pallide testaceus vel sordide fuscus; capite et thorace nigro-signatis; antennis, genibus, tibiis tarsisque fuscis; elytris abbreviatis. Long. 10 millim.

Hab. MEXICO, Panistlahuca, Toxpam, Cordova (*Sallé*); NICARAGUA, Chontales (*Belt*).

Very variable in colour, either pale dirty yellow or fuscous, with paler margins to the elytra. The head is pale, more or less spotted or clouded with fuscous at the base or between the eyes. The thorax has sometimes a transverse irregular mark formed of several smaller united spots, or is quite yellow, or has a horseshoe mark. The knees and tibiæ, with the tarsi, seem constantly infuscate. The elytra are shortened so as to leave about one quarter of the abdomen uncovered.

20. **Chauliognathus nigriceps.**

Flavus, opacus; capite subnitido nigro, epistomate flavo-maculato, antennis, pedibus, abdominis segmento ultimo maris ventrali, dorsalibus utriusque sexus et scutello nigris; alis fuscis; elytris abbreviatis, postice acuminatis. Long. 10 millim. ♂ ♀.

Var. elytris nigro marginatis.

Hab. MEXICO, Cordova (*Sallé*); BRITISH HONDURAS, river Sarstoon (*Blancaneaux*); GUATEMALA, Sinanja valley, Senahu (*Champion*).

This is very distinct from *C. lituratus* by the black head and scutellum. The side of the head in front of the eye is pale yellow; and the mandibles are of this colour at their base. The thorax is quadrate and rather smooth, the hind margin narrowly raised. The coxæ are black externally, but yellow on their internal side.

The variety with the elytra margined with black laterally is a male, and has the valvular plate black. It is from Mexico.

21. **Chauliognathus apicalis.**

Niger; mandibulis basi maculisque duabus ad antennarum insertionem albis; prothorace elytrorumque apicibus flavis, illo puncto mediano fusco, elytris abbreviatis. Long. 9 millim. ♂.

Hab. GUATEMALA, Senahu (*Champion*).

The head of this species is of the same shape and marked as in *C. nigriceps*, the sides of the head in front of the eyes being whitish, and the colour extending into two spots, from which the antennæ take their origin. The thorax is scarcely so wide as the head, and is, on the average, a little longer than wide, ochreous yellow, with an indistinct or well-marked central spot. The mesosternum is, for the most part, white. The ventral plates are broadly margined with yellow, excepting the anal valve of the male, which is black. It is rather nearly allied to *C. nigriceps*, but well distinguished by the black elytra, with only the tip yellow.

22. **Chauliognathus emaciatus.** (Tab. V. fig. 17.)

Pallide lividus; capite nigro, infra et antice flavo; antennis, palpis, prothoracis disco, femoribus externe, tibiis et tarsis nigris; elytris paullulum abbreviatis. Long. 12 millim. ♂ ♀.

Hab. GUATEMALA, Capetillo, San Gerónimo (*Champion*).

The head is rather large, and as wide or wider across the eyes than the thorax: sometimes the whole front is yellow; but more often the space immediately above the mouth is black. The disk of the thorax is wholly black, but is indented by a yellow spot in the centre of the base; the margin is entirely yellow. The scutellum is black. The underside is wholly yellow in both sexes.

A Capetillo specimen is figured in the Plate.

23. **Chauliognathus histrio.**

Callianthia histrio, Dej. Cat. 3rd ed. p. 118 (sec. Sallé coll.).

Flavus; occipite, antennis, elytris (limbo toto excepto), alis, femorum apicibus, tibiis tarsisque nigro-fuscis; elytris abbreviatis. Long. 10–11 millim. ♂ ♀.
Var. thoracis disco nigro-fusco. ♀.

Hab. MEXICO, Cordova, Tuxtla (*Sallé*).

Head yellow beneath and in front, the crown dull black; prothorax in the male a little longer than wide, usually with a wide depression in the centre of the base, sometimes with small discoidal spots; in the female quadrate, and with the disk sometimes black, at other times yellow with the lateral depressions infuscate. Scutellum brownish, with yellow apex. Elytra short and acuminate, leaving quite one third of the apex uncovered; the suture and margin yellow, the apex more widely so, their bases sometimes yellow, but rarely so. The apical valve in the male slightly infuscate.

This species is very like what I have received from Texas as "*marginatus*, Fab.,"

but has not the breast fuscous, nor the narrow, even thorax, with a broad black vitta, of that species.

Section II. b. *Elytra parallel or narrowed towards the apex; not shortened, nor lancet-shaped.*

24. **Chauliognathus terminalis.**

Niger; pectore, abdominis basi, prosterno, prothoracis angulis posticis, et elytris (triente apicali excepto) flavis. Long. 12–14 millim. ♂ ♀.

Hab. NICARAGUA, Chontales (*Belt*); COSTA RICA, Cache (*Rogers*).

Somewhat resembling *C. dimidiatus*, but narrower and more parallel. The head is very long, black, piceous beneath. Thorax with the upperside of the pronotum black, but more or less indeterminately fulvous at the base. Breast and first three segments of the abdomen yellow; but the centre of the metasternum is black in some examples, and in one the underside has all the paler parts fuscous, possibly owing to discoloration.

I have only seen three specimens, with the exception of an old one in my own collection.

25. **Chauliognathus collaris.**

Niger; prothorace rufo, suborbiculari, nitido, punctis duobus nigris; antennis corporis longitudine. Long. 12 millim. ♂.

Hab. MEXICO, Cordova (*Sallé*).

Readily distinguished from any other species of the genus by the nearly totally black colour, with the exception of the thorax the only parts which are not so being the lateral edges of the ventral segments, which are yellow, especially the ones near the base and their margins, which are extremely narrowly yellow. The legs are long, and the tarsi are longer than usual; the claws are yellow.

A single specimen in Sallé's collection is all that I have seen.

26. **Chauliognathus aterrimus.**

Ater; tuberculis antenniferis, maculis minutis singulis in coxis anterioribus, et limbo ventrali anguste flavis. Long. 11 millim. ♂.

Hab. MEXICO, Puebla (*Sallé*).

A narrow parallel species, with the head moderately elongate, black, with the exception of the spot at the insertion of the antennæ. The thorax has the sides and base margined and a little reflexed, the front nearly plain; in the two male examples before me it is a little longer than wide, the margin scarcely shining. Elytra dull deep black. Underside and legs totally black, the lateral margins of the abdominal plates alone excepted; the apical valvular one is quite black.

27. **Chauliognathus scapularis.**

Callianthia scapulata, Sturm coll.

Nigro-fuscus; prothorace (punctis duobus nigris), plaga humerali, femoribus ad apicem, tibiisque flavis, abdomine segmentis singulis basi fuscis flavo marginatis. Long. 11 millim. ♀.

Hab. MEXICO (*Sturm, coll. Sallé*).

The coloration of the elytra of this species is common to a great number of Mexican beetles both of this and of other families; but this is not liable to be confounded with any other; for the shining yellow thorax with two black round dots placed one on each side of the disk is only common to it and to *C. collaris*.

The shoulder-stripe extends rather more than a third of their length down the elytra, and includes the whole callus and reflexed margin of the shoulder. The antennæ are wanting in the single female specimen, with the exception of the first two joints, which are black. The apex of the elytra is very narrowly yellow; and they probably vary, as other species of the genus do, in the amount of the black and yellow colours.

28. **Chauliognathus morio.**

Callianthia morio, Sturm coll.

Statura omnino *Photini perelegantis*, at aliquid major. Nigro-fuscus, opacus; capite maculis duabus lateralibus ante oculos, prothoracis limbo frontali et laterali et margine reflexo, elytris sutura et margine tenuissime flavis; antennis compressis, serratis. Long. 15 miliim. ♀.

Hab. MEXICO (*Sturm, coll. Sallé*).

Remarkably resembling some *Photini*, perhaps most an undescribed species of the group to which my *Photinus perelegans* belongs.

The head is as long as in typical *Chauliognathi*; but the antennæ are rather those of *Daiphron*. I should not be willing to admit it into that genus, however, at present, because the elytra are very parallel, and are long even for the present genus. The thorax is subquadrate, with a well-marked central channel in the centre of the disk. The scutellum and base of the elytra are fuscous. The pale margin begins immediately below the humerus; it is faint at the apex. The suture is entirely pale. The elytra are finely coriaceous, rather more coarsely so at the base. The antennæ are not more than half the length of the body.

A single example only in Sallé's collection, from that of Sturm.

29. **Chauliognathus hastatus.** (Tab. V. fig. 7.)

Nigro-fuscus; prothoracis limbo elytrisque testaceis, his sutura latius post scutellum maculaque magna apicali marginem vix attingente nigris; abdomine segmentibus singulis (maris apicali excepto) flavo marginatis, Long. 11–14 millim. ♂ ♀.

Var. elytris fuscis, plaga lata humerali ad medium vel ultra provecta testacea.

Hab. MEXICO, Capulalpam, Guanajuato, Orizaba, Puebla (*Sallé*), Alvarez Mountains, San Luis Potosi, Hacienda de Bleados (*Dr. Palmer*), Jalapa (*Höge*); GUATEMALA, San Gerónimo, Panima (*Champion*).

The figure represents a female specimen from Guanajuato.

Head black, moderately elongate; antennæ of the male nearly as long as the body; the head at their insertion has a yellow ring, but not completed in front. Thorax quadrate, but narrowed towards the front, the entire margin reflexed, more distinctly at the base and sides, and yellow, the base usually very narrowly so; disk opaque, with a square shallow impression behind. Scutellum black, the apex sometimes yellow. Elytra variable, sometimes fuscous black, with the shoulders as far as the middle, and the margin for two thirds, yellow, or with the suture broadly black near the scutellum, narrowing to a point before or near the middle, where an apical spot commences, leaving only the suture and margin narrowly yellow, the apex more widely so. The ventral plates are yellow, spotted or banded with black at the base. The apical convex segment in the male is black.

This appears to be one of the commonest species, at least in those localities where it occurs in Mexico and Guatemala. It is represented in Texas by *C. limbatus*, Leconte, from which it differs in its average larger size, the abdomen spotted or ringed with black, &c. Out of a very large series of *C. hastatus* which I have seen there is none with a quite yellow base to the abdomen, as my exponent of *C. limbatus* has.

Subfam. *TELEPHORINI.*

DISCODON.

Unguiculi externi maris fissi. Caput postice constrictum; oculi mediocres, subglobosi, prominentes; antennarum articulus secundus tertio multo brevior. Prothorax margine haud integro, maris lateraliter minute inciso, feminæ ante angulos posticos sinuato-emarginato. Abdominis segmentum ventrale apicale maris bilobatum, subapicale angulariter emarginatum; pygidium convexum.

This genus is allied to *Podabrus* in the form of the head and in the general appearance; but the notching of the sides of the thorax is a character I have not seen in any species of that genus, and, taken with the division of the apical segment of the male, indicates some affinity with the Silini. The notch is very small, and is not situated in the same position in the different species: in *D. erosum* it is below the middle, and viewed from above appears only as a small indentation in the acute edge of the margin; but in *D. plicatum* the notch appears to be due to the flattening and extension of the margin where it commences to be slightly reflexed in front.

The apical segment of the abdomen of the male is also very different in structure from that of *Podabrus* and *Telephorus*. This plate, which appears to be the seventh, is divided for its whole length, thus having two lobes slightly inclined to each other, the segment preceding it being angularly gable-shaped and cut out. The fission of the claw is analogous to that of *Podabrus*; but it is here only the external claw, and that only in the males, that is divided.

1. **Discodon erosum.**

Nigro-fuscum; capite, pedibus basi, prothorace et scutello flavis; genubus, tibiis et tarsis fuscis. Long. 10–11 millim. ♂ ♀.
Var. capite nigro, ore et epistomate flavis.

Hab. MEXICO, Cordova, Toxpam, Cuernavaca (*Sallé*).

Head and thorax clear yellow and spotless; the antennæ about two thirds of the length of the body, fuscous, the extreme base sometimes reddish; palpi pale at the base, the apical joints of the maxillary pair elongate hatchet-shaped, of the labial triangular. Thorax shining, as wide as, or, in the female, wider than long, rounded in front; the basal margin slightly raised: on each side in the male is a minute notch or interruption of the margin. The elytra are greyish fuscous. The centre of the sterna, the coxæ, trochanters, and femora, excepting only their extreme tips, are reddish yellow. The abdomen is dark fuscous black; in some specimens only the angles of the ventral segments are marked with ochreous.

2. **Discodon plicatum.**

Nigrum, nitidum, ore flavo; prothorace glabro, aurantiaco, macula oblonga discoidali nigro-picea. Long. 10–11 millim. ♂ ♀.

Hab. MEXICO, Cuernavaca, Guanajuato (*Sallé*); GUATEMALA, Cerro Zunil, Panima, Dueñas, and near the city (*Champion*).

A species in its general appearance very much resembling rather small specimens of the European *Telephorus rusticus*, also not unlike *T. picticollis* (described hereafter) and other species. It may, however, be recognized by the shining head and thorax, by the oblong black spot on the latter, which in the Mexican specimens is continued till it becomes a complete vitta from the front to the base, by the black legs and underside, and, of course, by the generic characters. The claws are red; the anterior pair are furnished with a triangular membranous lobe on the inner side, and are not split; the intermediate and posterior ones have the outer claw of the male split, and with its outer division shorter and more bent than the inner one.

3. **Discodon incisum.**

Flavum; antennis, palpis pedibusque (basi exceptis) nigris. Long. 11 millim. ♂ ♀.
Var. femoribus fere totis, tibiisque testaceis.

Hab. GUATEMALA, Dueñas, San Gerónimo, Cerro Zunil (*Champion*).

Very much of the size and colour of *Telephorus bicolor*, Fab. Body entirely testaceous; antennæ fuscous or black, the basal joint usually in part yellow. Thorax subquadrate, in the male a little narrower at the base than above the notch, the latter situated about one third from the hind angles, which are acute; base finely reflexed; disk with a shallow double impression. Underside, with the coxæ, trochanters, and

base of the femora yellow. The pygidial plate is strongly dome-shaped, with its margin reflexed so as to meet the bifid ventral segment which closes the anal aperture. This structure is not so much developed in *D. plicatum*, where the pygidium is flatter. In the female the apical ventral plate is broad and angularly notched on each side of the middle, the thorax is wider behind than in front; the sides are only very slightly sinuate; and this sex may, of course, be distinguished by the claws being all simple.

The specimens from Cerro Zunil have the sides of the thorax in the male with a wider and deeper excision; the elytra have the middle of their margins narrowly black; and the legs are paler.

4. **Discodon nigripes.**

Nigrum; capite, prothorace, scutello elytrisque flavis. Long. 9½–11 millim. ♂ ♀.

Hab. GUATEMALA, Las Mercedes (*Champion*).

Head yellow, a little clouded above, shining; antennæ and palpi black; tips of the mandibles pitchy. Thorax shining, disk uneven; lateral notch in the male small, obliquely directed forwards in the middle; the margin in the female only a little sinuate. Mesosternum yellow. Legs, postpectus, and abdomen black. Pygidium of the male a little convex; apical ventral segment of the female rounded, not notched at the apex.

5. **Discodon carbonarium.**

Atrum; capite et prothorace nitidis, ore obscure piceo. Long. 8–8½ millim. ♂ ♀.
Mas prothorace medio lateraliter constricto, segmento apicali ventrali fisso.

Hab. GUATEMALA, Quiche Mountains (*Champion*).

The almost totally black colour of this species will distinguish it from any other of the genus except *D. melancholicum*, the only parts which are not black being the mouth, which is obscurely pitchy, and the membranous portions exposed between the prosternum and breast, which are yellowish. The head, as in many of the species of the genus, is more contracted behind in the male than in the female; but the thorax covers nearly all but the crown. The constriction of the thorax in the male is similar to that of *D. incisum* and *D. marginatum*, in which the margin is not distinctly notched.

About eight specimens, of which two are males, have been captured by Mr. Champion.

6. **Discodon marginatum.**

Testaceum, subnitidum; prothorace disco infuscato, foveola lata impresso; elytris fusco-piceis, marginibus, sutura strigaque humerali rufis; antennis fuscis, articulo primo rufo. Long. 10 millim. ♂ ♀.
Mas prothoracis limbo laterali ante angulos posticos contracto vix edentato, segmento apicali ventrali fisso.

Hab. GUATEMALA, Calderas, Dueñas, San Gerónimo (*Champion*).

Easily separable by its colour from any other of the genus, and also differing in being of a soft texture, as shown by the shallow depression in the centre of the thorax, which

is, I think, due to shrinkage and the tendency to shrivel in the elytra. The head has usually a dark spot on the crown in the female. The thoracic spot is oblong. The elytra widen a little towards the apex; the humeral vitta is not very distinctly separated from the pale margin, but sometimes runs down the discoidal nervure; the softness of the elytra does not admit of the darker and pale portions being ever very distinctly marked.

Seven specimens have been sent, three of them males.

7. **Discodon vitticolle.**

Fuscum; capite nigro, ore pedibusque piceis, prothorace læte rufo, nigro-vittato; elytris piceis, apud humeros et externe dilutioribus. Long. 7–8 millim. ♂ ♀.

Mas prothoracis margine laterali plicato-interrupto; unguiculis anticis internis lobo triangulari ad basin instructis, intermediis et posticis externis fissis; abdominis segmento ventrali apicali fisso, apice exciso.

Hab. GUATEMALA, Purula, Tamahu, Chacoj (*Champion*).

Var. elytris nigro-fuscis, vitta pallida ab humero usque ad apicem fere provecta.

Hab. MEXICO, Juquila (*Boucard, coll. Sallé*), Cordova (*Höge*); GUATEMALA, Zapote (*Champion*); COSTA RICA (*van Patten*).

Variable in the depth of colour of the elytra, and in the more or less vividly tinted thorax, this insect in all its forms resembles species of the genera *Photinus* and *Photuris*. It is perhaps best distinguished by the bright red thorax, with a narrow black vitta from the base to the front, or nearly reaching it. The head is black, with the chin and mouth pitchy. The bifid apical segment of the male is more deeply cut out at the apex than in other species of the genus.

8. **Discodon flavicolle.**

Atrum; epistomate, ore et prothorace albido-flavescentibus; capitis basi picea. Long. 11–12 millim. ♂ ♀.

Mas prothorace margine laterali tenuiter oblique inciso; unguiculis anticis lobatis, intermediis et posticis fissis.

Hab. MEXICO, Cordova (*Sallé, Höge*), Jalapa (*Höge*).

Smoky black, a little shining above. Head pitchy or rufous at the base, crown black, front and underside yellow; antennæ and palpi fuscous. Thorax shining, pale yellow; lateral margin obliquely and finely notched in the middle in the male. Scutellum and humeral callus yellow.

This insect almost precisely resembles *Photuris lugubris*, already described. The absence of any white abdominal segments will afford a ready distinction.

9. **Discodon melancholicum.**

Aterrimum; prothorace nitido, quadrato suborbiculari; elytris rugose coriaceis. Long. 9–10 millim. ♂ ♀.

Hab. MEXICO, Leon, Guanajuato (*Dugès, coll. Sallé*), Parada (*Boucard, coll. Sallé*).

Entirely black, excepting that in one example the thorax has the sides pitchy red. The head is less constricted behind than is usual in the genus; and the insect has very much the appearance of a true *Telephorus*, being, indeed, of the size and colour of the

European *T. tristis*. The male, however, has the sides of the thorax notched near the middle, and the apical segment divided; the external claws are also split, though only at their extreme apex, and the fission is not easily seen with an ordinary lens. The coriaceous sculpture of the elytra is a good distinctive character.

From *D. carbonarium* the thorax hardly narrower in the male than in the female, with a central notch, will at once separate it.

10. **Discodon triste.**

Atrum, subopacum; capite et prothorace nitidis, hoc lateribus latius albido-flavis (maris medio) tenuiter oblique incisis; elytris rugose subcoriaceis. Long. $6\frac{1}{2}$–8 millim. ♂ ♀.

Mas prothoracis margine laterali tenuiter plicato-interrupto; unguiculis anticis internis lobo subtriangulari, intermediis et posticis externis fissis.

Hab. MEXICO, San Luis Potosi, Hacienda de Bleados (*Dr. Palmer*), Guanajuato (*Dugès, coll. Sallé*); GUATEMALA, Dueñas, Capetillo (*Champion*); NICARAGUA, Chontales (*Janson*).

Var. Prothoracis lateribus rufis.

Hab. GUATEMALA, Quiche Mountains (*Champion*).

Entirely black, with the exception of the thorax, which has its sides broadly pale yellow, inclining to red near the middle. The disk is very shining and black; this discoidal patch increases in width towards the base, so as sometimes to form a triangle; or it is widened behind, with an indistinct spot on each side near the hind angles, which is less intense. The angles and base itself are often pale; but the black usually extends to the base and front in the middle.

The mandibles are pitchy, lighter in colour at their bases, and darker at the tips; the rest of the head, body, and legs is entirely black. The elytra are almost rugose, with very obsolete indications of striæ.

This species is evidently a very near ally of *D. melancholicum*, and perhaps not specifically distinct. Some specimens which I think belong to the same species are pitchy; and some of those from Chontales have the legs partly pitchy red; this is probably due to their having been captured soon after having quitted the pupal state.

11. **Discodon normale.** (Tab. V. fig. 20, ♀ *Telephorus*; Tab. VI. fig. 20, ♂.)

Nigrum, opacum; capite et prothorace subnitidis, hoc lateribus late flavis, puncto subdiscoidali utrinque haud distincto, illo fronte flava, ore fusco. Long. 10–11 millim. ♂ ♀.

Mas prothoracis disco infra medium incisura sat profunda fere recta; unguiculis anticis internis et intermediis externis lobo membranaceo instructis, posticis externis fissis.

Hab. MEXICO, Cuernavaca, Oaxaca, Capulalpam, Juquila (*Boucard, coll. Sallé*), Mexico city (*Dr. Palmer*), Jalapa, Cordova, Cerro de Plumas (*Höge*); GUATEMALA, Capetillo (*Champion*).

Var. elytris sutura margineque flavis.

Hab. MEXICO, Cuernavaca, Juquila (*Boucard, coll. Sallé*).

The figure on Plate V. represents a female specimen from Capetillo; that on Plate VI. a male from Mexico.

Rather variable both in comparative width and colour, but generally distinguished among the Central-American Telephoridæ by the broad thoracic vitta, with a short lateral transverse branch below the middle of the disk, which at times appears like a spot in the broad yellow margin, united to the black of the disk. In most of the specimens which I refer to this species the hind angles of the thorax are distinct and nearly right angles; in some, however, they are more obtuse and rounded. The external resemblance to the European *Telephorus obscurus*, Linn., is rather striking.

This species, with several others which I at first referred to *Telephorus*, has the middle claws of the male not finely split, but with a lobe very similar to that of the front pair, while the hind pair have the claws with the lobe produced so as to give the idea of their being bifid. The apical segment of the abdomen is cleft as in other species; the two lobes have their suture somewhat open at the base. In the specimens with pale margins to the elytra the sides and apex of the abdomen are often yellow.

In some specimens from Juquila the elytra are ampler than usual, and the hind claws of the male are less distinctly lobed; but I do not think they pertain to a distinct species.

In some remarkably stout and robustly-built female specimens from Cuernavaca, Oaxaca, and other parts of Mexico the apical segment is apparently contracted at the apex, and with the pygidial plate longitudinally compressed (perhaps only in drying), so as to form a sort of gutter. There is a variety of this stout form which has the thorax and base of the legs and greater part of the abnomen, and in one example even the elytra, yellow. This latter is a single specimen taken at Cerro de Plumas by Höge.

12. **Discodon perplexum.**

Nigrum; elytris subopacis, ampliatis; prothorace aurantiaco, nigro-vittato; abdomine flavo, basi fusca. Long. 15 millim. ♂.

Mas prothoracis margine juxta angulos posticos incisura sat profunda; unguiculis internis anticis et externis intermediis lobatis, posticis externis fissis.

Hab. Mexico, Misantla (*Höge*).

There being only two male specimens which, at present, I can refer to this species, I think it may possibly prove to be the male of the species described by me as *Telephorus picticollis*. It is larger, and the elytra especially wider, than any *Discodon* at present described.

The head is yellowish in front; but the apex of the mandibles, the palpi, and mouth are dark fuscous. The thorax has no angles in front, the margin being rounded to meet the sides; the hind angles are distinct, but not sharp, and, in the male, are detached from the lateral margin by a rather deep incision. The abdomen has all the segments margined, and the three last entirely yellow, the apical one being divided, the lobes being closely joined, a little open at the apex. The elytra are finely coriaceous,

more inclined to be granulose than in the female specimens which I refer to *Telephorus picticollis*.

13. **Discodon cleroides.** (Tab. V. fig. 18, *Telephorus*.)

Atrum; elytris subopacis, capite margine frontali et mandibulis basi albidis; prothorace transverso, subquadrato, limbo toto et plaga discoidali subtriangulari nigris; antennis corporis vix dimidio longitudine æqualibus, leviter serratis. Long. 9–10 millim. ♂ ♀.

Mas prothoracis margine laterali medio incisura sat profunda, unguiculis posticis externis fissis.

Hab. GUATEMALA, Dueñas, Purula (*Champion*).

The general appearance of this insect is almost exactly that of a species of Cleridæ; the form, evenly narrowed before and behind, the short serrate antennæ, the colour of the thorax (black, with an oblique red vitta on each side, which leaves the margins black), are all repeated, and are similar to the general features of several species of *Photinus* as well, so that the deception in nature must be perfect. The species appears to vary a little in size and in the width and form of the black discoidal patch of the thorax. Thus one variety will resemble some one species of *Photinus*, while another may be more close in general facies to another.

The abdomen has one or two apical segments, and the margin of some of those preceding, whitish. The anterior internal claw of the male has a lobe at the base; but while the middle pair seem to have the same claw thickened, it is not so widened. The hind claw is thickened and finely bifid.

The figure in the Plate is taken from a female from Dueñas.

14. **Discodon photinoides.** (Tab. V. fig. 19, *Telephorus*.)

Nigro-fuscum; capite nigro, epistomate flavo; prothorace flavo, plaga discoidali subtriangulari nigra; elytris fuscis, margine laterali et sutura tenuiter flavis. Long. 9–11 millim. ♂ ♀.

Mas prothoracis margine laterali tenuissime plicato-interrupto; unguiculis anticis internis basi lobatis, intermediis et posticis externis basi incrassatis haud fissis.

Hab. GUATEMALA, San Gerónimo, Dueñas (*Champion*).

Var. elytris totis nigro-fuscis.

Hab. GUATEMALA, Dueñas (*Champion*).

There appear to be several species closely resembling the present one, and whose discrimination depends on the observation of differences in the structure of the claws of the males. Nevertheless, if these are attended to, there will, I think, be found other minute differences in the average size, the more or less parallel form, the shape of the thoracic discoidal patch, and the form of the male ventral segments and their colour.

This species has the extreme front of the head yellow. The thorax is smooth and even, with a somewhat triangular patch on the disk. The elytra are rather parallel, a little widened in the female, and attenuated towards the apex. The abdomen is wholly dark fuscous; in only one example is it at all paler towards the apex.

In the male the segment preceding the apical one is angularly emarginate, the apical cleft (as it is, indeed, in all species of *Discodon*) not much raised. The absence of fission in the hind claw is not of generic importance, being but a secondary character; but it will, I think, indicate a separate section. The inner point where the claw appears to be divided is, I think, an independent structure, analogous to the "membranous lobe" on the front or middle pair, which is sometimes of a tooth-like shape, and reaches in some cases near to the tip of the claw.

The figure represents a female from San Gerónimo.

15. **Discodon dubium.**

Nigro-fuscum; capite nigro, epistomate flavo; prothorace flavo macula oblonga vel disco toto nigro-piceo; elytrorum marginibus et sutura abdominisque margine tenuiter flavis. Long. 9–11 millim. ♂ ♀.

Mas prothoracis margine laterali infra medium incisura tenui sat profunde fere recta; unguiculis posticis externis fissis.

Hab. Mexico, Oaxaca, Juquila (*Boucard, coll. Sallé*).

The principal points in which this species shows any difference from *D. photinoides* (apart from the male characters) are that the thorax is not so evenly convex and the discoidal patch is rather of an oblong shape. The abdomen is margined; and sometimes the angularly excised subapical plate has its apical margin whitish yellow.

16. **Discodon luridum.**

Nigro-fuscum; capite, antennis, tibiis tarsisque nigris, epistomate flavo; prothorace et elytris sordide flavis, his amplis, illo disco piceo; abdominis margine et maris segmento apicali pallidis. Long. 11–12 millim. ♂ ♀.

Mas prothoracis margine laterali incisura sat profunda paullo ante angulos posticos; unguiculis externis basi lobatis, posticis vix fissis.

Hab. Mexico, Juquila (*Boucard, coll. Sallé, Höge*).

The section to which this species belongs have the elytra soft, considerably widened below the middle, and generally shrivelled in drying; but their form is quite recognizable. The females have the elytra as wide as the males. The external claws of the male in *D. luridum* are all furnished with the usual membrane at their base; but in the hinder pair this projects as a tooth-like plate nearly to the length of the claw; thus the claw when viewed from its back appears bifid. The present species is easily recognized by its brownish-yellow elytra and pale yellow thorax, with a broad pitchy-black vitta, narrowing towards and not often meeting the front margin.

The apical ventral plate in the male has its two lobes inclined to each other, and much raised where they meet at the apex.

17. **Discodon lugubre.**

Aterrimum, opacum; elytris amplis; capitis fronte prothoracisque epipleuris læte flavis; antennis basi latiusculis serratis, ad apicem attenuatis. Long. 10–12 millim. ♂ ♀.

Mas prothoracis margine laterali incisura sat profunda paullo ante angulos posticos; unguiculis anticis internis, intermediis externis basi lobatis, posticis vix fissis.

Hab. Mexico, Cuernavaca, Durasnal (*Sallé*).

Similar in most of its characters to *D. luridum*, this species is distinguished by its black colour, the front of the head and the reflexed margins of the prothorax being the only yellow parts.

The elytra are subcostate; and the antennæ (which are about half the body's length) are more compressed and widened from the third to the sixth joint than is usual in this genus.

18. **Discodon histrio.** (Tab. V. fig. 22, ♂.)

Atrum; capite prothoraceque nitidis, hoc epistomate flavo-maculato, illo lateribus flavis; elytris subcostatis, humeris flavo-guttatis. Long. 9–10 millim. ♂ ♀.

Mas prothoracis margine laterali per sulcum obliquum leviter emarginato; unguiculis anticis internis lobatis, intermediis et posticis externis fissis.

Hab. Guatemala, Dueñas, Capetillo (*Champion*).

Head nearly black, with only a few yellow speckles between the antennæ; the latter are nearly filiform, only a little thicker from the third to about the fifth joint. The thorax is rather small, narrowing a little in front. The discoidal black patch reaches from the base so as just to touch the front, where it is narrower. The elytra have a very distinct shoulder-stripe of orange colour occupying the raised callus, and three raised nervures. The combined effect of these characters is to render this species very like a *Lycus*; and it adopts the pattern so very common among the small Coleoptera of the district it inhabits. It is perhaps most close in resemblance to *Calopteron mimicum*.

The specimen figured is a male from Capetillo.

19. **Discodon difficile.**

Atrum; epistomate, ore et prothorace albido-flavescentibus. Long. 10–11 millim. ♂ ♀.

Mas prothoracis margine laterali infra medium tenuissime oblique inciso; unguiculis anticis internis basi lobatis, intermediis et posticis externis basi incrassatis, haud fissis.

Hab. Mexico, Juquila (*Boucard, coll. Sallé*), Guanajuato (*Dugès, coll. Sallé*).

Extremely like *D. flavicolle*; but, in addition to the male not having the middle or hind claws split, the scutellum is black, the thorax is more transverse and not so much rounded in front, its disk is mottled with darker yellow spots, and its margins are not reflexed, nor with a basal deeply impressed line. The elytra are subrugose, and not shining as they often are in *D. flavicolle*.

I have only seen two male and one female specimen at present.

20. **Discodon bivittatum.**

Flavum; occipite, prothoracis vittis duabus tumidis, elytris (margine et sutura exceptis), antennis, palporum articulis ultimis, tibiis, tarsis, pectore et abdomine maculis ventralibus nigro-fuscis. Long. 8–10 millim. ♂ ♀.

Mas abdominis segmento ultimo ventrali partito; unguiculis anticis internis, intermediis et posticis externis lobatis, haud fissis.

Hab. Mexico, Oaxaca, Yolos (*Boucard, coll. Sallé*); Cordova, Playa Vicente (*Höge*).

This species reminds one of *Telephorus bilineatus* of Say, which is found in the United States; it is also not unlike *T. guatemalensis* (described hereafter in the present work). From the former the pale margins and suture of the elytra, and from both the curiously raised black vittæ of the thorax (in addition to the male generic characters) distinguish it. The crown and base of the head are black and not shining; the antennæ and terminal joint of both pairs of palpi are black. The thorax has its margin finely reflexed, less so in front; it is subquadrate in the male, wider with more rounded sides in the female. The elytra exhibit two or three raised lines; but these are usually little evident except in the female. Coxæ, trochanters, and femora yellow; sometimes the hind thighs are infuscate above. The claws are yellowish.

21. **Discodon oppositipunctum.**

Pallide flavum; prothorace punctis duobus (uno in medio marginis frontalis, altero basali ante scutellum), antennis, palpis, tibiis et tarsis, abdominis segmento ultimo elytrisque nigro-fuscis. Long. 7–9 millim. ♂ ♀.

Mas prothoracis disco antice oblique constricto et foveolato, margine vix interrupto; unguiculis posticis fissis.

Hab. Mexico, Cordova, Toxpam (*Sallé*).

Head yellow; eyes prominent, especially in the male; antennæ greyish fuscous, with paler base and articulations. Thorax subquadrate, rounded in front, hind angles right, disk uneven; constricted in the male, and with more prominent hind angles; a small spot close to the front margin in the middle, and another on the middle of the base; at times a spot occupying two lateral foveæ is faintly visible. Scutellum yellow. Elytra greyish fuscous, finely punctured. The legs are yellow, with the exception of the knees narrowly black, and the tibiæ and the tarsi of the same colour. The whole underside is yellow, excepting the last segment of the abdomen in both sexes.

Four specimens are in M. Sallé's collection.

22. **Discodon purpurascens.** (Tab. V. fig. 23, ♀ *Silis*?)

Nigrum; capite et prothorace rufis, hoc vitta mediana, illo occipite nigris; elytris rufis, subpurpureis, obsolete pubescentibus; antennis corpore brevioribus, vix serratis. Long. 10–12 millim. ♂ ♀.

Mas prothoracis margine laterali medio oblique minute inciso; unguiculis anticis internis basi lobatis, intermediis et posticis externis fissis.

Hab. Costa Rica (*van Patten*), Cache (*Rogers*).

When I had only seen a single female of this species, which is the specimen taken by Mr. Rogers, shown in the Plate, I thought it would prove to be a *Silis*; a

second specimen, which is much more obscure in colour, but which I believe is, without doubt, a male of the same species, is clearly congeneric with the preceding insects.

This specimen has lost its pubescence; and the elytra are subcoriaceous, smooth at the base, opaque at the apex; they widen gradually from the base. The thorax is smooth, its margins not much reflexed; near the hind angles (which are acute) are two shallow foveæ. In the female the sides narrow towards the front. The head is blackish on the crown; the mandibles and mouth are blackish; the palpi, antennæ, legs, and body entirely black.

23. **Discodon flaccidum.**

Obscure piceum; prothorace sordide rufo vel flavo; elytrorum marginibus suturaque et pedibus sordide testaceis; capite, antennis tarsisque nigris. Long. 6–7 millim.

Hab. GUATEMALA, Chiacam, Cubilguitz, Teleman (*Champion*).

The soft integuments, parallel elytra with pale margins, pale legs and rufous or pale horn-coloured thorax with pitchy disk, give this species quite the appearance of a small Lampyrid of the genus *Photinus* or *Photuris*, e. g. *Photuris mollis*, to small specimens of which it assimilates in size. The sides of the thorax are minutely indented.

I am not able at present to indicate the male characters with certainty; but I have little doubt the specimens with narrower thoraces and with the sides more acutely notched are males. The antennæ do not exceed half the body's length. The elytra are finely and sparingly pubescent.

Seven specimens are all I have seen.

Obs. The claw described as the *internal* one of the front tarsi, is really so only when the leg is directed forwards; it is homologous with that which is the external one of the middle and hind feet.

TELEPHORUS.

Telephorus, Schäffer, Element. Ent. t. 123 (1766); Olivier, Ent. ii. 26; Degeer, Ins. iv. 60.
Cantharis, Linn. Syst. Nat. ii. p. 647; Fab. Ent. Syst. i. p. 216.

It would not be within the scope of this work to enter upon a discussion of the involved synonymy, or of the many subdivisions which have been attempted of the genus *Telephorus*.

Kirsch has described six species of *Telephorus* from Bogota, which are clearly congeneric with the above (Berl. ent. Zeits. 1865, p. 80 &c.).

The genus is here adopted as it is now generally received in modern works on European species. I should retain *Rhagonycha*, Eschsch., as a good natural division; but I have not at present found a Central-American representative of this form, although, as there are fourteen species in Mr. Crotch's list of the Coleoptera of

America north of Mexico, it is not impossible it may occur. The fission of the claw of *Rhagonycha* taken alone is, after all, only analogous to what occurs in *Photuris* among the Lampyridæ, and is found with various modifications in *Podabrus*, *Discodon*, and in other genera, attention to which is much needed. The character by which *Telephorus* proper is defined best is by the apical ventral segment in the male being neither valvular nor split, but simply an ovate small plate covering the genitalia.

Telephorus in its widest sense, then, is found all over the world, and numbers at present about 350 species. It is, however, as a glance at the Munich Catalogue will show, especially the genus of the northern temperate zone, and is quite as abundant in New-World as Old-World forms. Forty species from temperate North America are in Crotch's list.

Dr. Leconte has recently published a synopsis of the species found in the United States (Trans. Amer. Ent. Soc. ix. pp. 50–55, March 1881), in which the number of *Telephori*, inclusive of *Rhagonycha*, is given as thirty-five. *Polemius*, which was included by Crotch, is evidently the representative of my genus *Discodon*, but differs from it in not possessing the lobes or fission of the claws of the males.

It may be observed I am unable to give the sexual distinction of the four species I have retained here in the genus. The number of specimens are few, and, it is probable, will have to be removed to other genera when their males have been observed. At present they must be regarded as unclassified.

1. **Telephorus lampyroides.** (*Discodon*?) (Tab. VI. fig. 15.)

Fusco-piceus, nitidus; prothorace transverso, quadrato, aurantiaco, glabro, macula discoidali basali picea; elytris sordide flavis, fusco-infuscatis, postice paulo ampliatis. Long. 16–17 millim. ♀.

Hab. Costa Rica, Rio Sucio, Volcan de Irazu (*Rogers*).

Var. elytris piceis, vitta in humeris incipiente margineque pallidis.

Hab. Guatemala, Cerro Zunil (*Champion*).

Head pitchy, shining, reddish at the base; antennæ fuscous, of moderate length, not reaching the middle of the abdomen; palpi fuscous, apical joints hatchet-formed, but not strongly so, and obliquely truncate. The width of the thorax is nearly or quite twice its length; it is very shining, the disk and sides evenly elevated, the base narrowly reflexed. Its colour is a clear orange-yellow; in the centre of the base a square pitchy black spot, more or less continued across the disk, but not reaching the front. The scutellum, breast, legs, base, and apical segment of the abdomen are dark fuscous. The elytra are rather dull, only a little shining at their bases, of a dull horn-colour, clouded in the centre with fuscous.

The variety from Cerro Zunil has the elytra darker, with a central pale vitta extending from the humerus to within about one third from the apex, and the external margin pale. The specimens all appear to be females, from the broad apical segment of the abdomen, which is always fuscous with paler margins.

The species, especially the variety, bears a very striking resemblance to Lampyridæ of the genus *Photinus*, as, for example, to *P. congruus* and *P. gliscens*.

2. **Telephorus rugipennis.**

Griseo-niger, subnitidus, subtus flavus; epistomate, prothorace postice pedibusque basi rufo-testaceis; prothoracis disco postice fossa haud profunda; elytris subrugose fortiter punctatis, lineis duabus subelevatis. Long. $6\frac{1}{2}$–$7\frac{1}{2}$ millim.

Hab. GUATEMALA, Zapote (*Champion*).

Head narrowed and rounded behind; mouth, mandibles, palpi, and base of the antennæ pitchy red. Apical joint of the maxillary palpi triangular. Thorax suborbiculate, the margin a little reflexed, hind angles a little acute and turned out, the base sinuate; immediately before the centre of the base is a squarish shallow fossa, which, with the front half of the thorax, is black. Underside yellow, with the exception of the breast, which is leaden black, and a cloud on the middle of each ventral plate. The coxæ and femora are pale yellow; the knees, tibiæ, and tarsi dark. The antennæ reach a little further than the hind coxæ. There are only three specimens which agree with this. The rough elytra and peculiarly coloured thorax sufficiently distinguish it; but I am not able to determine the sex of these specimens.

3. **Telephorus mimetus.** (*Silis*?)

Niger, subopacus; ore, epistomate et mandibulis, prothoracis lateribus calloque humerali rufis. Long. 6 millim.

Hab. GUATEMALA, Zapote (*Champion*).

Extremely like *Silis nigrita*, but with the head of a different form, more exserted, and with smaller eyes, which are not so globular. The antennæ are black, scarcely reaching the hind coxæ. The thorax is narrower than in *S. nigrita*, and with the sides bisinuate as in the female *S. hæmatodes* &c.; the hind angles are acute and a little projecting outwards; the disk is opaque, uneven, with a wide shallow depression in the centre of the base. The elytra are opaque black, with only the humeral callus red; there are obsolete indications of striæ, and very obsolete puncturing.

Two specimens are all I have seen. In size and colour this insect also exactly resembles various *Platerotes* of the *striatus* group, some *Caloptera*, and a variety of *Silis varians*. The prominent trapezium-shaped head with red jaws and the form of the thorax are the best general distinguishing characters.

4. **Telephorus comptus.**

Niger, subopacus; prothorace transverso, læte rufo, disco nigro, inæquali, postice tuberculo duplo, lateribus reflexis, fortiter rotundatis, angulis posticis subrectis, minute productis; antennis compressis, serratis, ad apicem attenuatis. Long. 9 millim. ♀.

Hab. GUATEMALA, San Gerónimo (*Champion*).

There are only two specimens among Mr. Champion's collections, which agree in having a decidedly transverse thorax with reflexed margins, the disk uneven, and with a double tubercle, somewhat in the manner of *Discodon bivittatum*, behind. The head is squarish, the mouth and middle of the underside being pale; it is small for the size of the insect. The antennæ reach about to the posterior coxæ; they are entirely black.

The sides of the thorax are much rounded in the middle, narrowed a little in to the base, the hinder angles being turned outwards; the base and front are nearly straight; but the front angles are quite lost.

Both the specimens being females, it is impossible finally to decide on the genus of these specimens; but in form they approach some *Discoda*. The underside is black; the apical segment is more shining than the rest, but is simply truncate, or has its apex a little sinuate, and presents no especial character.

Subfam. *SILINI*.

This group corresponds to the "Siliaires" of Mulsant. At present I adopt it only for such genera as have the thorax with notched or deeply lacerated sides in one or both sexes, the hind angles cut away or in some mode defective in the males, the antennæ more or less serrate, and the claws simple or only with a small laminar enlargement near the base of the outer ones.

A more extended examination of African and Eastern forms will, I think, show that the longitudinal division of the apical ventral segment of the males is a character of the highest importance in the formation of natural divisions of this family. In this respect the Central-American species of *Silis* are obviously allied to my genus *Discodon* and to Leconte's genus *Polemius*, which only differs from it in not having split claws. And if this be taken as indicating their true affinities, there are representatives of the Silini in Africa, Madagascar, Sumatra, and China.

SILIS.

Silis, Latreille, Règne An. ed. 2, p. 471 (1829).
Ditemnus, Leconte, Class. of Col. of N. Am. p. 189.

I have been very much in doubt as to the limits to assign to this genus; and I now include in it only such insects as in the males have the thorax with some incision or sinuosity near the hind angles, and at the same time have the last abdominal plate cleft and simple claws. Leconte's genus *Polemius* (Lacord. Gen. des Col. iv. p. 359; Trans. Ent. Soc. Amer. ix. p. 55) approaches nearer *Discodon*; but I have not yet seen it.

Two species of *Silis* are known in Europe. About twenty other species are referred to it from Eastern Asia, the United States, and South America.

Section I. A. *Maris prothorax juxta angulos posticos vel sinuatus vel excisus.*

1. **Silis lycoides.** (Tab. V. fig. 21.)

Atra, opaca; prothoracis lateribus humerisque flavis: elytris fortiter costatis; antennis medio incrassatis, serratis. Long. 9–10 millim. ♂? ♀.

Mas? prothoracis lateribus antice angustatis, trisinuatis.

Femina prothorace latiore, lateribus rotundatis, ante angulos posticos minute sinuato-excisis.

Hab. Mexico, Jalapa, Cordova (*Höge*); Guatemala, San Gerónimo, Capetillo, Dueñas, Cubilguitz, Purula (*Champion*).

The figure represents a specimen from San Gerónimo, probably a male.

Head punctured, rough, yellow, with black crown, sometimes only a black spot; narrowed behind, with prominent eyes. Thorax usually roughly punctured, and with a few indistinct tubercular swellings on the back of the disk, smoother in the female. The male (?) has the sides with indistinct front angles, between which and the hind angles are two projections, the hind angles themselves being acutely turned points. The elytra, especially in the male (?), are tricostate, with thickened sutures and margins, and strongly elevated shoulders as well; the yellow of the shoulder is occasionally extended over their base, but always leaves the suture black. The interstices between the costæ are finely rugose. I have some doubt about the sex of these specimens; for in none of the examples have I been able to observe a divided ventral segment. This circumstance gives rise to doubts also as to the genus. The resemblance to some Lycidæ, especially to *Calopteron ichnoides* and *mimicum*, as well as to *Discodon histrio* and to some other Telephoridæ, is so extraordinary that they may readily be confounded even after careful comparison.

2. **Silis varians.** (Tab. VI. fig. 1, *var.*)

Nigra; capite et prothorace flavis, hoc vitta tenui, illo supra plus minusve nigris; elytris flavis, triente apicali, interdum sutura etiam oblique nigris; antennis compressis, subserratis, coxis pallidis. Long. 8–9 millim. ♂ ♀.

Mas prothorace angulo posteriore minute oblique exciso; unguiculis anticis et intermediis internis, posticis externis, lamina parva instructis; segmento ventrali apicali fisso.

Femina angulo posteriore minute exciso.

Hab. Mexico, Toxpam, Tuxtla (*Sallé*); Guatemala, Vera Paz, Chacoj, San Isidro, San Juan, Teleman, San Joaquin, Panima, La Tinta, Tactic, Dueñas, Zapote (*Champion*).

Var. elytris flavis.

Hab. Guatemala, Vera Paz, Teleman, Chacoj, Panima.

Var. nigra, prothoracis lateribus, et humeris tantum flavis.

Hab. Mexico, Juquila (*Boucard, coll. Sallé*).

A common and widely-spread species in Mexico and Guatemala, mimicking various species of Lycidæ and Cleridæ in its different forms. The thorax is minutely notched immediately before the hind angles in both sexes; and this, with its flattish, slightly costate elytra, shining thorax, of a semioval form, with a straight truncate base, as wide as the base of the elytra, and rather wide compressed antennæ, are the best general characters by which it may be known.

The black portion of the elytra often commences on the suture at its base, gradually widens till it meets the margin about one third from the apex.

Section I. B. *Maris prothorax magis orbiculatus lateribus medio excisis.*

3. **Silis præmorsa.** (Tab. VI. fig. 2.)

Atra, opaca; capite flavo, occipite nigro, oculis magnis; prothorace suborbiculari, lateribus flavis, disco punctato, opaco, medio depresso; elytris fortiter tricostatis, callo humerali flavo. Long. 8 millim. ♂.

Mas prothoracis lateribus paullo infra medium fortiter profunde excisis, margine utrinque excisionis dentato-producto.

Hab. Guatemala, Cerro Zunil (*Champion*).

With this species commences a little section of the genus in which the thorax, more or less orbiculate, has a notch in the middle.

The specimen described above is a single male captured by Mr. Champion: I have seen several other specimens which are near to it in structure, but differ so far in the depth and position of the excision that I do not feel it possible to unite them with it.

The antennæ in this specimen are almost simple, the head wide across the eyes. The apical abdominal plate split.

4. **Silis nigrita.**

Atra, nitidula; capite flavo, oculis prominulis; prothorace suborbiculari, lateribus infra medium tenuiter incisis, flavis; elytris subtiliter coriaceis, callo humerali pedibusque basi pallidioribus. Long. 5½ millim. ♂ ♀.

Mas prothoracis lateribus infra medium oblique subtiliter incisis.

Femina? prothorace ad angulum posticum incisione obliqua sat profunda, margine basali truncato; elytris lineis tribus elevatioribus.

Hab. Guatemala, Chiacam, Quiche Mountains (*Champion*).

This is allied to *S. præmorsa*; but, in addition to the prothorax being much less deeply cut out in the male, the whole insect is more shining, the elytra less costate. The legs are pale in the femora. The two specimens which may, I think, be the females, have the thorax less orbiculate, owing to the hind angles being less obliterated, as they are in the type, by the tooth-like projection of the margin above them.

5. **Silis hæmatodes.**

Atra, nitidula; capite prothoraceque rufis; antennis dimidio corporis longioribus, filiformibus; elytris parallelis, subtiliter coriaceis, scutello rufo. Long. 6–7 millim. ♂ ♀.

Mas prothoracis lateribus infra medium oblique incisis, margine utrinque excisionis dentato-producto, angulis posticis nullis.

Femina prothoracis lateribus trisinuatis, angulis posticis acute productis.

Hab. Guatemala, Capetillo, Dueñas, Cerro Zunil, Las Mercedes, Chiacam (*Champion*).

In this insect the thorax of the male is even more orbiculate than in *S. præmorsa*, owing to the margin projecting less above and below the incision and to the hind angles having disappeared. It is easily known from other species described here by the head and thorax in both sexes being clear reddish yellow, the only one like it in this respect being the following species, *S. erythroderes*, in which the scutellum is black and the thorax more oblong and differently notched. The elytra are elongate and parallel, finely coriaceous, with obsolete raised lines.

6. **Silis erythroderes.**

Atra, nitidula; capite et prothorace sanguineis, antennis ut in præcedente, elytris subtilissime coriaceis, fere alutaceis, scutello nigro punctato. Long. 7 millim. ♀?

Femina? prothoracis lateribus medio late constrictis, ante angulos posticos sinuatis.

Hab. Mexico, Jalapa (*Höge*).

Distinguished from *S. hæmatodes* by the characters given above. There being only at present two specimens, probably females, it will be better not to give a more detailed description till more specimens have been seen.

7. **Silis eroides.** (Tab. VI. fig. 6.)

Nigro-fumosa, opaca; antennis compressis, serratis, prothorace suborbiculato, lateribus flavis, plicato-incisis; elytris postice modice explanatis, subtiliter rugosis, lineis tribus obsolete elevatioribus, plaga lata humerali ochracea pone medium producta. Long. 6–7 millim. ♂ ♀.

Mas prothorace fere orbiculato, lateribus medio plicato interruptis; oculis magis prominentibus.

Femina prothorace magis oblongo, lateribus sinuatis, angulis posticis minute acutis.

Hab. Mexico, Cordova (*Sallé*); Guatemala, San Juan, San Isidro, El Zumbador, Las Mercedes (*Champion*).

A specimen from Las Mercedes is shown in the Plate. The pattern so very often repeated, and the somewhat lyciform shape, occur again in the present species. There are species of the genera *Lycostomus*, *Calopteron*, *Plateros*, *Drilolampadius*, *Calocladon*, *Ichnea*, and of other families of Coleoptera, all in a general way, and some very closely, alike. This insect is known by the shape of the thorax, which has a rather large and open notch a little below the middle. The head and thorax are both rather roughly punctured and rugose; the eyes are prominent and globular, reminding one of the head of a *Calocladon*; the elytra are firmer than usual, gradually and neatly widened.

8. **Silis basalis.**

Flava, subnitida; antennis (articulo basali excepto), palpis, femorum apicibus, tibiis tarsisque fuscis; elytris nigris, basi rufis. Long. $5\frac{1}{2}$–$6\frac{1}{2}$ millim. ♂ ♀.

Mas prothorace subquadrato, lateribus infra medium minute excisis.

Hab. Guatemala, Purula, Quiche Mountains (*Champion*).

This little species agrees sufficiently with *S. hæmatodes* to be compared with it; the thorax, however, is more transversely quadrate, and in the male is nicked much in the manner of a *Discodon*. The female, however, has the minute excision immediately before the hind angles, and these themselves, acute, as in other species of this group of *Silis*. The eyes are small; the antennæ nearly of the length of the body and filiform. The amount of red at the base of the elytra varies from a mere spot to one third; it is never very clearly defined. The specimens from the Quiche Mountains have darker legs than those from Purula. In these latter the underside is wholly red, except the abdomen, which is indistinctly infuscate. The legs are red, with the exception of the tips of the tibiæ and the middle of the tarsi.

9. **Silis lineata.**

Parallela, nigro-picea, nitida; capite et prothorace flavis, nigro-vittatis; elytris nigro-piceis, angulo humerali flavo; vel flavis, sutura apiceque nigris. Long. 6–7 millim. ♂ ♀.

Mas prothoracis lateribus ante angulos posticos biexcisis.

Femina prothorace antice angulato, margine ad angulum incrassato.

Hab. GUATEMALA, Cahabon, Cubilguitz, Chiacam, Balheu, Teleman, San Joaquin (*Champion*).

This little species is nearly of the same size as *S. basalis*. The thorax is marked with a straight narrow vitta; and the head has a spot on the crown. The antennæ are black to the base, rather more than half as long as the body, longer in the male. In the male the thorax appears bidentate on the sides; the incision is not very deep, and the hind angles are not acutely produced in either sex. The elytra are usually pitchy black, with the humeral angle above yellow; two or three raised lines are faintly visible. Varieties occur in which the yellow extends itself along the margin, or occupies the greater part of the wing-covers; the apex and the suture appear always to remain black.

Section II. *Maris prothorax processu duplici lamellato marginali.*—DITEMNUS, Leconte.

10. **Silis distorta.**

Nigro-fumosa, subopaca; epistomate, thoracis marginibus, abdominisque maculis lateralibus flavis; thoracis disco nigro, nitido, rufo-cincto, profunde fossulato. Long. 5–6 millim. ♂ ♀.

Mas prothoracis lateribus processu duplici laminato, posteriore contorto, disco profunde foveolato impunctato.

Femina prothorace magis orbiculato, juxta angulum posteriorem minute exciso.

Hab. GUATEMALA (*Sallé*), Aceituno, Dueñas, Zapote (*Champion*).

The extraordinary lamellar processes from the side of the thorax, in the males of this and some other species, would seem at first to warrant their generic separation; but it is to be observed that the various species of *Silis* all differ in the mode in which the thorax is notched or sinuate, and that all the American species I have seen differ from the type (*S. ruficollis*), which is a European form. While the present species retains the principal characteristics of Leconte's genus *Ditemnus*, it is plain from his description that the shape of the processes and notches differs, and that it also differs in some respects from Westwood's genus *Pachymesia*. The head presents nothing unusual; the antennæ are half the body's length, not, or scarcely, serrate in either sex. The thorax of the male is slightly emarginate in front; the round anterior margin then forms the first process, which is produced backwards in a lunate form, so as partly to cover the hinder one. The latter is produced from a detached portion of the margin in a parallel direction; behind it the thorax is constricted. The disk is deeply foveolate, the fovea being pointed in front and behind. In the female this fovea is only represented by an irregular double depression. Elytra leaden black, with a greyish pubescence, their margin sometimes exceedingly narrowly white in the middle. Legs black; abdomen black, sometimes each segment with a yellow spot on the side.

11. **Silis dilacerata.** (Tab. VI. fig. 4, ♂.)

Nigra, subnitida; prothorace rufo, disco fossulato, nitido, nigro-vittato; elytris plumbeis, margine laterali tenuissime albidis. Long. 5–5½ millim. ♂ ♀.

Mas prothoracis lateribus processu duplici laminato, posteriore contorto, biacuminato.

Femina prothorace transverse subquadrato, antice angustato, juxta angulum posteriorem minute exciso, disco bifoveolato.

Hab. Mexico, Cordova, Capulalpam (*Sallé*), Juquila (*Boucard, coll. Sallé*); Guatemala, Capetillo, Zapote, San Gerónimo, Santa Rosa, Purula, Teleman, San Juan (*Champion*).

Var. thorace toto rufo.

Hab. British Honduras, Rio Hondo (*Blancaneaux*); Guatemala, San Gerónimo (*Champion*); Nicaragua, Chontales (*Janson*).

The figure in the Plate represents a male specimen from Capetillo. This species is distinguished from *S. distorta* by being rather less broad and more shining, by the posterior process of the thorax in the male being in a manner bifid, and not so apparently winding, while the anterior lamina does not overlap it so plainly. The disk of the thorax is very shining, and in the male with a deep fossa, which is entirely impunctate and longer than wide. In the female this is represented by a double and much smaller impression. The fossa and disk in front and behind are black; but the whole hinder part of the thorax is never so as it is in *S. distorta*. More rarely the whole thorax is red. Two examples from San Gerónimo have the suture narrowly pale.

12. **Silis albicincta.** (Tab. VI. fig. 5, ♂.)

Silis albicinctus (Chev.), Sallé coll.

Nigra; ore prothoraceque rufis; elytris marginibus et sutura concinne albis, scutello pallido. Long. 5–5½ millim. ♂ ♀.

Mas prothoracis lateribus processu duplici laminato; anteriore cultriformi, cum posteriore annulum quasi præbente; disco profunde fossulato.

Femina prothoracis disco leviter impresso, angulis posticis truncatis.

Hab. Mexico, Toxpam, Cordova (*Sallé*); Costa Rica, Volcan de Irazu (*Rogers*).

Var. antennis, palpis pedibusque rufis; capite etiam nonnunquam rufo. ♂ ♀.

Hab. Panama, Volcan de Chiriqui (*Champion*).

Head black, mouth whitish, palpi dark at their apices; eyes prominent, the head contracted behind them. Thorax red, the lateral laminæ of the male complicated, the anterior one being much bent backwards into the sinus formed by the posterior. Its apex appears to have a double acuminate angle. The posterior process is a twisted laminar plate directed from the hind angles forwards; the basal margin beneath it appears acutely incised.

Viewed from above these processes are confused and simply present the appearance of a hole having been pierced near the hind angles. The central fovea in the male is a deep round pit, impressed in the centre. The elytra widen from

the base; they are deep shining black, with conspicuously white edges. The legs are black with pale coxæ.

The specimen figured is one from the Volcan de Irazu.

13. **Silis rufifrons.**

Nigra; capite, prothorace et scutello rufis. Long. 5–5½ millim. ♂ ♀.
Mas prothoracis lateribus processu duplici, posteriore longius biacuminato, spinifero.
Femina prothoracis angulis posticis acute excisis.

Hab. Guatemala, Chiacam (*Champion*).

Rather closely allied to *Silis dilacerata*; but, independently of the red colour of the head, there are permanent distinctive differences: viz. the thorax is shorter; in the male the front process is, as it were, only the portion of the front margin left by the deep excision of the inferior part of the side, and the hinder process is quite different in shape, with a long spine on its basal side. In the female the hind angles have an excision; in *S. dilacerata* there is none. The antennæ of the male are as long as the body, but in the female much shorter. The elytra are quite black.

14. **Silis laticollis.** (Tab. VI. fig. 17, ♂.)

Atra, subopaca; prothorace lato; elytris rugose punctatis; abdomine apice flavo. Long. 5 millim. ♂.
Mas prothoracis lateribus fortiter incisis, infra incisionem processu laminato, disco obsolete biimpresso.

Hab. Mexico, Jacale (*Sallé*).

This is a very distinct species, and as it were intermediate between species of the group to which *S. præmorsa* belongs and *S. distorta* and the two preceding species. It is entirely black, excepting the apex of the abdomen, the mandibles, and mouth. The thorax is wider than the elytra; the latter are coarsely punctured and substriate, scarcely covering the abdomen. The antennæ are nearly as long as the body.

The whole insect is robustly built.

Subfam. *MALTHINI.*

The species of this subfamily are of small size, and remarkable for their shortened elytra. Some of the genera have very curious anal appendages and apices of the abdomina. The genera, with two exceptions, seem poor in species, but are still widely European forms abundant in species, and common on trees and bushes in early summer.

TRYPHERUS.

Trypherus, Leconte, Proc. Acad. Phil. v. p. 346 (1852); Trans. Ent. Soc. Am. ix. p. 58.
Lygerus, Kiesenw. Linn. Ent. vii. p. 246 (1852).

Founded by Leconte for a species found in the United States, and which is nearly

related to the Eastern genus *Ichthyurus*. The absence of thickened femora in the male, and the different form of the apical plate of the abdomen, warrant its separation. One species has been found in Central America:—

1. **Trypherus forficulinus.** (Tab. VI. fig. 7.)

Nigro-piceus, nitidus; fronte flava, elytrorum apicibus abdomineque supra rufo-testaceis; abdominis segmento ultimo dorsali utrinque angulariter acuminato atque elevato, lobis nigris. Long. 10½ millim. ♂?

Hab. GUATEMALA, Quiche Mountains (*Champion*).

Head pitchy, pale yellow between the eyes; and the antenniferous tubers are of the same colour. Antennæ fuscous, except at the point of insertion to the head; their third joint nearly twice as long as the second. Thorax of the same width as the head, its disk impunctate, margined by a fine line. Elytra one quarter the length of the abdomen, with two raised lines and a humeral costa; their apices rich orange or ferruginous red. Wings reaching nearly to the apex of the abdomen. Apical segment of the latter with two angular projecting points, which are elevated and a little slanting outwards and dark pitchy; in the angle formed between them the segment appears to be produced into a small angular lobe. *T. latipennis* is described by Leconte as having the female with last dorsal segment trilobed at the tip. I am not certain of the sex of the single specimen here described.

This is one of the most singular forms among the Coleoptera; the superficial resemblance to an earwig is not to be overlooked.

LOBETUS.

Lobetus, Kiesenw. Linn. Ent. vii. p. 244 (1852), nec Leconte, Trans. Ent. Soc. Amer. ix. p. 59.

This most extraordinary genus is founded on a species, *torticollis*, from Venezuela. The insect which Leconte refers to it has the antennæ alike in both sexes; and notwithstanding Dr. Leconte's remark that in his opinion this is a character of only specific importance, I believe, on the contrary, that, while the mode of distortion and number of joints so affected is not perhaps of itself of sufficient importance to warrant my forming a new genus for the species here described, yet the amorphic structure of the male antenna indicates some rudimentary form dependent on or correlated with the shortening of the elytra and the increase in the eyes, which are present, and is of the highest generic significance. At all events, the species here recorded shows more affinity with the type of Kiesenwetter's genus than does *L. abdominalis*, which I feel it necessary to assign to a different genus.

In *Lobetus mirabilis* it is not the ninth to eleventh joints, but every joint in the antennæ which takes some remarkable form. This structure is fairly represented in Tab. VI. fig. 10; it is most difficult to apprehend, from the fact that the processes from each joint are so contorted that one cannot see them all separately at one view, or even count the number of joints with certainty.

1. **Lobetus mirabilis.** (Tab. VI. figg. 10 ♂, 11 ♀.)

Testaceus; antennis basi excepta, tibiis tarsisque, alis et abdomine ad apicem infuscatis. Long. 8 millim. ♂ ♀.

Mas antennarum articulo basali magno difformi flavo, apicali spathuliformi, intermediis distortis, laminatis, setigeris; abdominis segmento penultimo dorsali bilobato medio excavato, genitali parvo lobis lateralibus subæquali.

Femina antennis simplicibus, segmento ultimo dorsali bilobato, ventrali convexo.

Hab. Mexico, Cordova (*Sallé*).

This very singular species, while not altogether agreeing with the generic characters of *Lobetus*, still shows affinity with its type.

The posterior tarsi have the first joint elongate, equal to the remainder. The intermediate pair have it less lengthened, but still as long as the three following. The head has the face perpendicular, the palpi dark. The thorax has its sides deflexed; but the side pieces of the prosternum are distinct. The elytra are formed, as in *Trypherus*, with a distinct callus and raised nervures.

Two males and two females are all that I have seen.

BELOTUS.

Lobetus, Leconte, Trans. Ent. Soc. Amer. ix. p. 59, nec Kiesenw.

I have given my reasons above for separating these insects from *Lobetus*. Three species have occurred in Central America.

1. **Belotus abdominalis.** (Tab. VI. fig. 8.)

Lobetus abdominalis, Leconte, Proc. Acad. Phil. v. p. 347[1]; Trans. Ent. Soc. Amer. ix. p. 59[2].

Hab. United States, Georgia[1], Texas, Florida (*Leconte*[2]).—Mexico, Cordova (*Sallé*), Juquila (*Boucard, coll.*); Guatemala (*Sallé*), Capetillo, San Gerónimo, El Jicaro, Tocoy, Teleman, La Tinta (*Champion*); Honduras (*Sallé*).

Var. thoracis disco infuscato.

Hab. Mexico, Parada (*Boucard, coll. Sallé*).

2. **Belotus fuscus.**

Fuscus, elytrorum apicibus flavescentibus. Long. 5 millim.

Var. thoracis lateribus et margine reflexo flavescente.

Hab. Mexico, Yolos (*Boucard, coll. Sallé*).

The four examples of this species from Mexico differ from *B. abdominalis* in being nearly entirely fuscous, and having the abdomen quite dark. They are not in good condition; but I have little doubt about their being specifically distinct.

3. **Belotus maculatus.**

Pallide flavescens, antennis (basi et apice prætermissis), palporum articulo ultimo, elytrorum macula oblonga humerali, geniculis, tibiis tarsisque fuscis, alis obscuris, abdominis segmentis singulis dorsalibus extus mucronatis. Long. 6–7½ millim.

Hab. Panama, Volcan de Chiriqui (*Champion*).

Head not much contracted behind, yellow, shining, impunctate; antennæ reaching as far as the posterior femora, filiform, pale fuscous; usually two or three joints at the base and the apical joint at least are quite pale. The thorax is longer than wide, the sides straight, narrowing a little from the base. The disk is shining, depressed on each side of the middle, which is sometimes very finely but unevenly channelled; it is shining and glabrous. Elytra as long as the head and thorax, one third as long as the hind-body; the humerus raised and occupied by a pitchy-black spot, which continues about half the elytron's length; the entire margin is yellow, as well as the scutellum. The abdomen presents the same peculiarity that I observe in *Maronius dichrous*; viz. the hind angle of each segment is produced into a blunt mucronate lobe. The last dorsal plate but one is roundly emarginate, embracing the pygidium, which is rounded at the apex and convex above.

About ten specimens of this insect, which I think to be congeneric with *B. abdominalis*, have been collected by Mr. Champion.

MARONIUS.

Genus antennis longis, quam corpus paulo brevioribus, elytris abbreviatis pedibusque longis *Molorchum* quodammodo simulans.

Caput breve, postice constrictum. Palpi max. art. ult. oblique truncato, subsecuriformi. Prothorax quadratus, depressus, biimpressus, vix marginatus, linea submarginali basali impressa. Elytra tertiam partem abdominis tegentia, haud distantia. Alæ amplæ, abdomini æquales. Pedes longi, tarsorum posticorum art. primo sequentibus æquali. Abdominis segmentum dorsale penultimum maris utrinque furcatum; apicale cum ventrali valvulam convexam formans; feminis segm. apicale minus, obconicum apice truncato.

1. **Maronius dichrous.** (Tab. VI. fig. 9.)

Rufo-ferrugineus; prothoracis disco elytrorumque apicibus aurantiacis; capite, antennis, palporum apicibus, femoribus (basi excepta), tibiis, tarsis abdominisque segmentis duobus ultimis nigris; alis fuscis. Long. 10–11 millim. ♂ ♀.

Mas processu segmenti penultimi laterali longiore, segmentis genitalibus subglobosis.

Femina processu vix prominulo, segmento apicali minore, ventrali apice rotundato, dorsali truncato angustiore.

Hab. Mexico, Playa Vicente (*Sallé*); Guatemala, Zapote (*Champion*); Nicaragua, Chontales (*Belt*, *Janson*).

A male specimen from Chontales is figured. Head black; underside of the basal and second joint of the antennæ and base of the palpi pale yellow; terminal joint of maxillary palpi triangular, apex obliquely truncate; crown shining. Prothorax reddish yellow, with a waxy look, margins sharp but not reflexed, a double impression on the disk. Elytra covering more than a third of the abdomen; their apices acuminate and thickened, waxy red. Abdomen clear red, the hind angles of each dorsal segment projecting, the last two segments black, the last but one being produced on each side: in the male the projection is a tooth-like tubercle; in the female it is simply the production

of the folded margin. The apical segment is conical, small, and truncate. The base of the legs is clear red; the apical half of the femora, the tibiæ, and the tarsi are blackish or fuscous. The basal joint of the tarsi of the posterior legs is as long as the rest taken together. The wings are fuscous black at their apices, paler and more reddish at the base.

Of this curious insect four examples were collected by Belt and one by Janson at Chontales; Champion met with a single specimen at Zapote; and there were four in the collection purchased by the editors of this work from M. Sallé.

THINALMUS.

Caput ut in *Malthinus*; oculi parvi, paulo prominentes. Antennæ maris corpori longitudine æquales, articulis tertio ad decimum ramum flabellatum a basi emittentibus; feminæ corpore paulo breviores, valde serratæ. Palpi articulo ultimo vix securiformi. Elytra abbreviata, capite thoraceque longiora, apicibus distantibus. Alæ amplæ, abdomen tegentes.

This new genus may be briefly described as *Malthinus* with the antennæ in the male strongly pectinate, in the female serrate. In the single species which I at present refer to it the basal joint of the antenna is stout, the second short and triangular, the third and succeeding joints as long as the basal one, each emitting from the base a lamellar branch which is longer than the joints and as long as the terminal joint, which, as usual, has no branch. The apical segments of the abdomen do not, so far as I can see, show any special appendages or particular structure, but are not easily observed in dried specimens. The ventral plate of the male appears divided or sulcate.

1. **Thinalmus pectinicornis.** (Tab. VI. fig. 13.)

Niger, epistomate, capite infra, prothorace (vitta discoidali excepta) trochanteribusque flavis; thoracis disco inæquali, obsolete canaliculato. Long. 5–5½ millim. ♂ ♀.

Hab. GUATEMALA, Cerro Zunil, Zapote, El Zumbador (*Champion*); PANAMA, Volcan de Chiriqui (*Champion*).

Head black above, with the front and underside yellow, opaque, closely and very obsoletely punctured; at the base a fine longitudinal impressed line. Thorax smaller and narrower than the head, black above, with yellow sides. The disk is shining, uneven, with a rather deep central channel with raised subtubercular sides; elytra black, with two or three raised lines and irregular confluent punctures, half the length of the body behind the prothorax. Wings dark. About a dozen specimens were taken at Cerro Zunil, one of which is figured. I have only seen one (a female) from Chiriqui.

2. **Thinalmus centro-lineatus.**

Niger; ore et epistomate flavis, capite et prothorace linea mediana rufis, scutello rufo. Long. 5–6 millim. ♂ ♀.
Mas antennis corporis fere longitudine, flabellatis ramis quam articulis triplo longioribus.
Femina antennis corpore brevioribus, leviter serratis.

Hab. GUATEMALA, Sinanja valley; PANAMA, Volcan de Chiriqui (*Champion*).

The flabellate pectination of this insect is longer than in *T. pectinicornis*; and it is readily recognized by the yellow-red median vitta of the head and thorax. The former is shaped as in *T. pectinicornis*. The antennæ and palpi are dark, the terminal joint of the maxillary pair are ovate, a little swelled, and acuminate at the tip. The second joint of the antennæ is triangular, as wide as long. The thorax has raised, slightly thickened margins, and a median channel as in *T. pectinicornis*. The elytra are entirely pitchy black, longitudinally corrugate, and the whole of the body with the wings and legs dull opaque black. The scutellum in the two male examples from Chiriqui is red; in a single female from the Sinanja valley it does not appear so. These are the only examples that have yet been sent.

MALTHINUS.

Malthinus, Latreille, Genera Crust. et Ins. i. p. 261 (1806).

About fifty species have been described from the Palæarctic Region. Mr. G. Lewis has met with the genus in Japan; and Leconte records two species from the United States.

1. Malthinus major.

Nigro-fuscus; ore, antennarum apice, prothorace (disco antice excepto), pedibus (femoribus summo apice tibiisque fuscis), pectore, abdominisque lateribus et basi testaceis. Long. 7 millim.

Hab. Panama, Volcan de Chiriqui (*Champion*).

Head wider across the eyes than long, much contracted behind, black, with the front at the insertion of the antennæ yellow. Antennæ three fourths of the body's length; filiform, fuscous, the basal three or four joints pale beneath, and the apical three joints pale. Palpi pale, with darker apex. Prothorax even and impunctate, a little narrowed in front, with a dark patch on the front half of the disk, not, however, reaching the front margin. Elytra opaque, fuscous, as long as the head and thorax, closely and subrugosely punctured. Legs pale, a dark patch near the apex of the femora, the tibiæ and tips of the tarsi dark. Dorsal surface of the abdomen and its apex pitchy black.

This is the largest species of *Malthinus* I have seen; and it appears to be larger than any species described. Three specimens recently sent from Chiriqui are all that have been seen by me; one of these has all the pale portions darker than the other two, owing, as I think, to discoloration.

2. Malthinus championi.

Nigro-fuscus; antennarum apice, prothorace, pedibus basi, pectore abdomineque testaceis, hoc dorso nigro. Long. 6–7 millim.

Hab. Panama, Volcan de Chiriqui (*Champion*).

Very little inferior in length to the preceding species, but narrower and with the head especially smaller and entirely black; the antennæ are not quite so long, and have

the last four joints yellow; the palpi are pale, with darker apical joints. The thorax is narrow, yellow, with a shallow depression on each side. The elytra are less evidently punctured than in the last species, and hence are a little more shining; and the margins of their attenuated apices are faintly yellow on the inner side. The knees of the two posterior pairs are black, the front pair indistinctly fuscous; the tibiæ and apices of the tarsi are dark. The underside, with the exception of the apex of the abdomen, is yellow.

Eight specimens were taken by Champion.

3. **Malthinus laticeps.** (Tab. VI. fig. 14.)

Nigro-fuscus; antennarum articulo primo, prothoracis lateribus anguste, pedibus, corpore infra elytrorumque apicibus flavis; antennis corpore longioribus. Long. 5 millim. ♂?

Hab. GUATEMALA, Calderas, San Gerónimo (*Champion*).

The head is nearly twice the width of the thorax, the space between the large subglobose eyes being as wide as or rather wider than it; both head and thorax are shining and only very obsoletely punctured, but with irregular impressions. The thorax is as long as wide, rather convex above, with depressed sides, which are a little rounded and very narrowly yellow. The antennæ are long, and as thin and thread-like as in European *Malthini*, their basal joint alone yellow. The elytra, rather more than half as long as the body, are from their base entirely dark, excepting their apices. It will be observed that they are thus much shorter, both in this and the following species, than in any English *Malthinus* or *Malthodes* with which they can be compared. This species has something of the appearance of *Malthodes flavo-guttatus*, and is of about the size, and has the antennæ of the length of those of the male, of that species; but its head is much wider, and its thorax is of a much narrower, more cylindrical form than that of any species of that genus.

A single specimen taken by Champion at Calderas is the one figured; two others were collected by him at San Gerónimo; another specimen, apparently identical with these, but which has lost its antennæ, was taken by Mr. Salvin near the city of Guatemala.

4. **Malthinus terminalis.**

Nigro-piceus, nitidus, capitis fronte, prothoracis lateribus pedibusque testaceis, his tibiis tarsisque fuscescentibus. Long. 4–5 millim.

Hab. PANAMA, Volcan de Chiriqui (*Champion*).

Pitchy black, shining, impunctate; head obscurely yellow with the base pitchy; antennæ a little shorter than the body, slightly serrate, dark pitchy black with the two apical joints yellow; sometimes only the terminal one is pale; palpi dark. Thorax pitchy, with the sides obtusely pale, rather wider than long, with a central channel, which is sometimes very obsolete. Elytra shining, faintly coriaceous, entirely pitchy. Legs pale; the tibiæ are fuscous, at least at their apices, and the tarsi dark, especially the third and fourth joints. The metathoracic epipleuræ are whitish.

The specimens which have one joint at the apex of the antennæ pale are, I think, the males. This species is at once distinguished among all I have yet seen of the genus from Central America by its rather stout antennæ, which are very finely serrate; and by the elytra without yellow apices, not much longer than the head and thorax, and by its comparatively small size.

5. **Malthinus brevipennis.**

Testaceus; antennis (articulo primo prætermisso), occipite, prothoracis macula discoidali, elytris (limbo toto apiceque exceptis) nigro-fuscis; antennis corpore paulo longioribus; elytris vage punctatis, vix striatis, corporis dimidio brevioribus, apice sulphureis. Long. 4 millim.

Hab. GUATEMALA, near the city (*Salvin*), Dueñas (*Champion*).

Leconte has compared his *M. occipitalis* with the European *M. fasciatus*, with which he thinks it may possibly be identical. The present insect differs from *fasciatus* as follows:—The black portion of the head is more extended between the eyes; the crown is nearly smooth; the thorax is not narrowed in front, but is subquadrate, a little rounded in front; its black marking is widest in front, often divided behind, sometimes consisting of only four spots—two more distant in front, two nearly approaching behind connected by an indistinct line. The elytra are much shorter than in *M. fasciatus*, not evenly striate, nor punctured in rows.

Seven specimens were sent by Champion from Dueñas.

6. **Malthinus cruenticeps.**

Niger; capite sanguineo, antice flavo, crebre punctato; pedibus flavis, tibiis tarsisque fuscescentibus; elytris corpore paululum brevioribus, regulariter punctato-striatis, apicibus lævibus. Long. 5 millim.

Hab. GUATEMALA, Cubilguitz (*Champion*).

Head rich ferruginous red, paler in front; antennæ nearly as long as the body, filiform, black, excepting the basal part of the first joint, their second joint equal in length to the third; maxillary palpi yellow, with fuscous apical joint, the latter oval, acuminate. Thorax firm in consistence, uneven, narrowed in front, margined, with irregular scattered rugæ and punctures, a fossa in front and behind on the centre of the disk, and acute but nearly right angles both in front and behind. Elytra evenly and deeply punctate-striate, the punctures more confused laterally and towards the apex, which is smooth and slightly convex. The prosternum, meso- and metathoracic epipleuræ are yellow, the sides of the abdomen reddish. The legs are pale yellow, excepting the tibiæ and tarsi, which are pale fuscous, the apices of the former even being pale.

This very curious and interesting little species appears in some respects to resemble Leconte's genus *Tytthonyx*. The description given above will show that it is not congeneric with the single species in that genus; indeed it seems only to differ from typical *Malthini* by the hard, firm appearance of the thorax and the peculiar coloration. A single specimen only has come under my notice.

7. **Malthinus flavipes.**

Niger, capitis fronte, antennis basi, pedibus et corpore infra plerumque testaceis; elytris abdomine vix brevioribus, regulariter punctato-striatis, antennis corpori longitudine subæqualibus. Long. 5 millim.

Hab. GUATEMALA, San Gerónimo (*Champion*).

Closely allied to *M. cruenticeps*, and agreeing with it in most of its characters, which therefore need not be repeated. In addition to the head being black (excepting only the front), the antennæ are longer, the prothorax is more constricted in front, and the tibiæ and tarsi are quite yellow.

Only two specimens (which are probably both males) have come under my notice.

MALTHODES.

Malthodes, Kiesenwetter, Linn. Ent. vii. p. 265 (1852).

The most numerous in species of the genera of the subfamily. The range of its distribution appears to be the same as that of *Malthinus*. Above one hundred species have been described. Leconte catalogues seventeen from the United States. Two species, very small in size, collected by Champion, appear to pertain to this type.

1. **Malthodes pallipes.**

Nigro-piceus, nitidus; antennis vix corporis longitudine, pedibus flavis, tibiis tarsisque infuscatis. Long. $3\frac{1}{2}$–4 millim. ♂ ♀.

Mas? Capite postice magis constricto, antennis corpori fere longitudine æqualibus, articulis duobus ultimis flavis.

Hab. GUATEMALA, Zapote, El Zumbador (*Champion*).

This little species is about the size of the European *M. misellus*, but rather smaller and with shorter antennæ and pale legs. The elytra are half the body's length, evenly punctured, not striate, and with the head and thorax of a uniform pitchy-black colour and shining. Only four specimens have been captured; and therefore I have not been able to make a detailed examination of the ventral segments; but they do not appear to present any thing peculiar.

2. **Malthodes sanguineicollis.**

Niger; ore, epistomate, capite infra prothoraceque rufo-ferrugineis; metathoracis epipleuris albis. Long. $4\frac{1}{2}$ millim.

Hab. PANAMA, Volcan de Chiriqui (*Champion*).

Among the Coleoptera recently sent by Mr. Champion from Chiriqui is a single specimen of a very distinct and pretty *Malthodes*. The front of the head, including the tubercles from which the antennæ spring, is red. The antennæ are entirely dark and filiform; and the palpi are dark. The thorax is firm, quadrate, with evident hind angles, its disk uneven, a deep impression before and behind, and two transverse impressions.

The disk is thus divided into a series of pits and elevations; of the latter two frontal, three median, and two near the base transversely placed are most evident. The elytra are half the body's length, serially punctate subcorrugate.

Fam. LYMEXYLONIDÆ.

The position of this singular family has not been ever definitely settled. That the insects which compose it have very close affinities with the Lampyridæ, and especially with *Phengodes*, cannot be denied; and I believe that ultimately it will be placed in proximity to those genera. I am constrained to enlarge the limits of the family to admit some very curious species for which otherwise separate subsidiary groups would have to be erected; and I should include some groups already created, viz. the Pterotini and Mastinocerini of Leconte. These beetles with those here described of the genera *Euryopa* and *Ptorthodius* have not, it is true, the remarkable maxillary palpi of the true Lymexylonidæ; but the eyes are largely developed in some, and the antennæ exhibit a vegetative, rudimentary structure. The excess of this structure in one pair of the cephalic appendages may very probably account for the want of it in the other pairs.

Of Leconte's family or tribe Mastinocerini I will only remark here that his genus *Mastinocerus*, represented by a small species from Texas, is not congeneric with the species described and figured by Solier in Gay's 'History of Chili,' pp. 441, 442, Taf. 10. fig. 11, in which (if the figure be correct) the tenth joint of the antennæ is small, and the terminal joint biramose; but his genus *Cenophengus* is related to it in having the second and third joints short, without rami.

The Lymexylonidæ proper consist of only three genera and of few species; but their distribution is as remarkable as their abnormal formation, every part of the globe having some representative.

PTORTHODIUS.

Caput exsertum. Oculi mediocres, subglobosi, laterales. Mandibulæ validæ, falcatæ, apicibus acutis, haud dentatis; palpi maxillares articulo apicali leviter ad apicem incrassato oblique truncato, labiales apice ovato. Antennæ 12-articulatæ, articulis secundo et tertio brevibus, quarto ad undecimum filamenta bina a basi emittentibus, apicali simplici. Prothorax vel opaca, pubescens (*ramosi*), vel nitida punctulata haud canaliculata (*mandibularis*). Elytra corporis dimidio plerumque longiora, apicibus dehiscentibus. Abdomen (maris?) segmentis septem, sexto emarginato, septimo longo angusto submucronato.

Type *Ptorthodius mandibularis*.

After a careful study of the characters given by Leconte for *Cenophengus*, *Mastinocerus*, and *Pterotus*, I do not think it is possible to connect the species described here with either of those genera. It is not always easy without the microscope to count the joints of the antennæ; but in the species I select as the type they are

evidently twelve-jointed, as will appear evident from there being eight pairs of rami, and that the basal three and the terminal joint have none; the latter, however, is closely articulated with the preceding joint, and the division is not distinct.

1. **Ptorthodius mandibularis.**

Testaceus; capitis vertice tumido nigro, mandibulis apice, antennis elytrisque piceis, his plaga discoidali testacea; alis fuscis. Long. 8 millim. ♂?

Hab. Panama, Volcan de Chiriqui (*Champion*).

Of all the small biramose species that I have yet seen of this group, this most resembles a *Phengodes*; the head is strongly raised behind and between the tubercles which give rise to the antennæ, and at this part is pitchy black and sparsely punctulate; the palpi, front of the head, and mandibles, except at their tip, are testaceous. The basal joint of the antennæ is stout, equal in length to the second and third taken together; and these three are pale beneath, fuscous above; the third to the eleventh joint gradually increase in length; each of them emits a long ramus, from three to four times the length of each joint, from its base on each side. The thorax is oblong, its lateral margin ends in front in a transverse constriction; the hind angles are square, a little turned outwards; it is shining, testaceous, with scattered punctures. The elytra have the suture more or less open, being narrowed from their bases; their tips are pale. The legs are entirely pale testaceous, the joints of the tarsi simple, the claws only a little dilated on their inner edge near the base. The apical segments of the abdomen are elongated and acuminate, not closely applied to each other, but more or less gaping or crossing and overlapping.

This insect is very like *Euryopa singularis*; but, in addition to its tumid head and smaller eyes, the antennæ are longer, with longer joints, and long (not rudimentary) rami. Three specimens taken by Mr. Champion at Chiriqui are all that I have seen.

2. **Ptorthodius ramosus.** (Tab. VI. fig. 12.)

Niger, opacus; capite æquali, antice sordide ferrugineo; elytris subgranulosis. Long. $7\frac{1}{2}$ millim. ♂.

Hab. Guatemala, Quiche Mountains (*Champion*).

The characters which separate this from *Euryopa nigra* are very much such as I have noticed distinguish *P. mandibularis* and *E. singularis*; yet I do not think there is evidence enough to connect them as sexes of one species. The colour and rough opaque texture are the same; but the antennæ have longer joints, with long rami. The head is not raised as in *P. mandibularis*; the only difference I see between the head of this species and that of *E. nigra* is that the eyes are smaller and more prominent.

Two specimens are assignable to this description, in one of which the head is quite black.

EURYOPA.

Caput breve, collo haud exserto. Antennæ 11-articulatæ, articulo basali valido, secundo perbrevi, tertio ad decimum filamentis binis pubescentibus instructis, undecimo longo simplici. Palpi maxillares articulo ultimo precedenti subæquali, ovato. Mandibulæ parvæ, haud falcatæ. Oculi magni, subtus fere contigui. Prothorax æqualis, transversus, angulis posticis haud productis, rectis. Elytra, corporis dimidio æqualia, postice attenuata, non subulata. Alæ amplæ, corpus superantes. Abdomen (maris?) segmentis ventralibus septem et genitali; segmentis brevibus et postice angustioribus.

Type *Euryopa fusca.*

This genus differs from *Phengodes* in the shorter antennæ, which have the filaments decreasing in length as they approach the tenth joint; the palpi are shorter. The head is quite of a different shape, not prominent in front, nor excavated between the eyes. The mandibles are inconspicuous. The eyes are large, globular, nearly meeting beneath, separated by a smooth space above, equal in width to one eye. The thorax has no thin expanded margin as in *Phengodes*. The elytra are not so rudimentary; when closed they diverge but a little, their suture and margins a little thickened and ciliated.

I have not seen either *Pterotus*, Leconte, or *Bœoscelis*, Spinola. The reduction of the mandibles seems to afford sufficient distinction, however, from either of those genera.

Four species from Central America are referable to the genus.

1. Euryopa fusca.

Fusca, nitida, capite nigro, prothorace et subtus subtestacea, antennis floccosis, elytris longitudine vix æqualibus. Long. 8 millim.

Hab. Mexico, Cordova (*Sallé*).

Head pitchy black, crown shining, punctured; antennæ pale fuscous, much shorter than in *Phengodes*, but with similar filamentary rami from the bases of joints 3–10; palpi and mouth fuscous. Thorax wider than long, the front angles much depressed, the lateral margins sharp and conspicuous but not expanded; prosternal region not much developed; the disk shining, almost glabrous; the base slightly sinuous, hind angles a little wider than right angles. Elytra longer than half the body, but by no means covering the ample wings, which reach beyond the apex of the abdomen. The former are soft in texture, of a uniform fuscous, obsoletely impressed, without visible nervures; their external margins as well as the sides of the thorax are furnished with soft brown cilia; and a very short but erect pubescence covers most of the whole insect. The underside and legs are yellowish fuscous.

This singular beetle is allied to *Phengodes*; but the head with large eyes and the thorax remind one of those of *Luciola*. The segments of the abdomen are not only not so compressed and extended as seems usual in *Phengodes*, but are much shorter, only passing the posterior femora by a little. The eighth or genital segment consists

of an upper and inferior, tubular or, rather, stylose plate; but to which sex to refer the two specimens before me I am at a loss.

There is no appearance of luminosity; but it is to be noticed that the whole underside is pale yellow or fuscous.

2. **Euryopa singularis.** (Tab. VI. fig. 4.)

Fusca, nitida; capite, pedibus et corpore subtus flavis, antennis breviter bipectinatis, elytris et thorace longitudine æqualibus. Long. 7 millim. ♂?

Hab. GUATEMALA, Cerro Zunil (*Champion*).

Head suborbicular, depressed, obsoletely punctured, pale yellow; mandibles, sides, and base pitchy; antennæ pale, joints 3–10 (?) each with two short lamellar branches; the joints are cylindrical, longer than wide, the lamellæ equal to two joints in length. Palpi with the apical joint short and wide, obconic. Thorax fuscous or pitchy, shining, obsoletely punctate, longer than wide, the base produced in the middle, anterior angles deflexed, posterior obtuse, not prominent; sides with fine pubescence. Elytra nearly half as long as the abdomen; suture divergent, rather rough, and darker towards the apex. Wings ample, reaching the apex of the abdomen. Legs clear yellow; tarsi filiform, fourth joint not bilobed; abdomen yellow, apical plates pitchy.

The very singular insect described above is allied to a species I have received from Texas under the name *Mastinocerus texana*, Leconte. Neither of them, however, can belong to *Mastinocerus*, Solier in Gay's 'History of Chili,' iv. p. 440, which has very long antennæ with long branches, the tenth joint being of a singular form, and the eleventh divided.

3. **Euryopa brunnea.**

Brunnea, nitida, antennis breviter bipectinatis fuscis. Long. 4 millim.

Hab. GUATEMALA, Cahabon (*Champion*).

Allied to *E. singularis*, from which it differs in being very much smaller, more shining, and of a uniform red colour, the antennæ and palpi being darker. The head is quite glabrous; the thorax also quite smooth, subquadrate, the base raised in the middle, sides a little narrowed towards the front. Elytra thin and semitransparent, roughish.

A single example only has been sent.

4. **Euryopa nigra.**

Nigra, subopaca; capite rufo, mandibulis piceis, rugose punctato, antennis nigris breviter bipectinatis. Long. 6 millim.

Hab. GUATEMALA, Capetillo; PANAMA, Volcan de Chiriqui (*Champion*).

The characters which distinguish this from the two preceding species are its generally

black colour, the shorter transverse thorax, the smaller eyes, and its opaque surface. The head is obscurely red, blackish near the eyes; the mandibles are more prominent than in either of the other species. The thorax is clothed, especially at the sides, with hairs. The elytra are a little shining, closely and finely punctured. The wings in repose cover the abdomen, as in the other species of the genus; they are dark.

Only two specimens of this species have apparently been met with. Its resemblance to *Ptorthodius ramosus* is so close that I should have been inclined to consider them sexes of one species, but that the differences of the antennæ with eleven joints, and of the form and position of the branches seem to me rather generic than sexual.

MELITOMMA.

Melitomma, Murray, Ann. & Mag. Nat. Hist. ser. 3, xx. p. 314 (1867).
Hylecœtus, Castelnau, Ann. Soc. Ent. Fr. 1832, p. 398.

The genus *Melitomma* was proposed by Mr. Murray, in the 'Annals and Magazine of Natural History,' for the insect known as "*Hylecœtus brasiliensis*" of Castelnau, and its affinities discussed at some length. It is not very clear, however, whether the characters of his genus were taken from the Brazilian species or from the insect described by him as *M. castaneum* from Old Calabar; nor do I feel at all sure that, if such a species exists, it is distinct from the American insect. The Lymexylonidæ of Mr. Murray's collection were purchased by me; but although I find specimens of what I refer to *H. brasiliensis*, there is no type of *M. castaneum* among them. A species, however, which appears identical with Mr. Murray's is in my collection from Siam, Laos, Celebes, and the Andaman Islands; and what is very remarkable is that there is really no specific difference between these beetles and the species sent from Central America. Nor is there any doubt about their generic difference from either *Hylecœtus* or *Lymexylon*. They are most nearly related to the latter genus, inasmuch as the abdomen is formed of five segments only. The so-called ocellus on the head of *Hylecœtus*, but which is simply a central point in the corrugation, is not present either. It would, indeed, have been remarkable if this point had proved to be an ocellus, as I am not aware that any coleopterous imago possesses such an organ.

But this genus is especially interesting because it proves the connexion of the genera I have admitted here, *Euryopa* and *Ptorthodius*, with the Lymexylonidæ. The antennæ show a similar "imbricate" or abortive stage of vegetative structure; the form of the thorax is almost identical, while the five segments of the abdomen and the singular palpi of the male show a close affinity with *Lymexylon*.

1. **Melitomma brasiliense.** (Tab. VII. fig. 3.)

Hylecœtus brasiliensis, Cast. loc. cit. p. 398[1].
Melitomma brasiliense, Murray, loc. cit. p. 315[2].
Melitomma castaneum, Murray, loc. cit. p. 316[3].

Hab. Mexico, Cordova, Tuxtla (*Sallé*); Guatemala, El Reposo, El Zumbador (*Champion*); Nicaragua, Chontales (*Belt*); Brazil [1], Santa Catharina [2] (*coll. Gorham, Murray*).—Celebes (*Wallace*); West Africa, Old Calabar [3]; Andaman Islands, Siam, Laos, Pachbon (*Mouhot*).

I have stated above that the type of Mr. Murray's *M. castaneum* has not been seen by me; the only difference which I can observe between the American and the Eastern exponents of this species is that the latter are rather more deeply castaneous or ferruginous red, and that their elytra are not so densely pilose; but even this is not always observable. In one example, at least, that from El Reposo, the elytra are at once darker and smoother than in other American specimens. Some of the Eastern examples are 24 millim., or nearly an inch in length; these are females; the males are usually much smaller, 10 millim.; but I must here notice I have found no male specimen from Central or South America, excepting one from Santa Catharina, which has, like those from the Amazon and Peru, black margins to the thorax and elytra. I do not, however, regard these as a separate species, and have therefore no reason for supposing the males of the Mexican or Guatemala species will be found to be different.

My own belief is that this will prove to be a species which is transported with commerce, in the spars or timber of shipping, although in that case the occurrence of it at high elevations must be admitted to be singular.

ATRACTOCERUS.

Atractocerus, Palisot de Beauvois, Décad. Philom. Ann. ix. p. 6 (1801).
Macrogaster, Thunb. Gœtting. Gel. Anzeig. xxix. p. 281 (1805).

The most abnormal genus of this curious family. The insects comprised in this genus have more the appearance of some Neuropterous or Dipterous form. The eyes are enormous, contiguous, or almost so, above, the antennæ rudimentary, the maxillary palpi of the male largely developed and with lamellar processes, the elytra reduced to a pair of scale-like rudiments; the hind wings well developed, with a costal and four principal veins; the third vein gives rise to two branches; these veins are all continued to the hind margin of the wing, and so form seven open cells. The costal and first vein are united by a transverse stigmatic vein.

Ten species of *Atractocerus* are given in the Munich Catalogue: they occur without much differentiation in Brazil, Africa, Madagascar, Ceylon, Java, the Moluccas, Australia, and I possess an undescribed species from the Philippine Islands.

From their habit of flying to light, and their largely developed eyes, I think it probable that the *Atractoceri* are parasitic upon the Lampyridæ in some of their stages. The Central-American species seems identical with the common South-American one.

1. **Atractocerus brasiliensis.** (Tab. VII. fig. 7.)

Atractocerus brasiliensis, Serville, Enc. Méth. x. p. 309[1]; Lacord. Gen. des Col. iv. p. 501[2], Atlas, t. 47. fig. 1.

Atractocerus dipterorum, Cast. Hist. Nat. i. p. 290[3].

Atractocerus dipterum, Perty, Del. An. p. 25, t. 5. fig. 15.

Hab. Mexico, Cordova, Tuxtla, Isabal (*Sallé*); Guatemala (*Sallé*), Dueñas (*Salvin*), Pantaleon, Torola (*Champion*); Nicaragua, Chontales (*Janson*); Panama, Volcan de Chiriqui (*Champion*).—South America, Brazil [1 2 3], Chili.

The Central-American specimens vary immensely in size; the smallest, one from Tuxtla, is very little over 13 millim. in length; while another from Cordova measures 43 millim., and is proportionally larger and more heavily built. Both of these appear to be males; yet it does not seem possible to separate them specifically. *A. brasiliensis* does not differ much from the corresponding species which occurs in Africa, *A. africanus*: the chief difference lies in the shorter thorax, with a not so deeply impressed median channel.

Fam. MELYRIDÆ.

The insects comprised in this family are generally distinguished among the Malacodermata by the insertion of the antennæ being in front of the eyes, on the sides of the front part of the head, by having the labrum distinct, and by the abdomen being composed of six plates or segments. In the structure of the tarsi, which often have the joints bilobed, produced into submembranaceous pads beneath, more or less enclosing the succeeding joints, and in the rather retracted head closely fitting into the thorax, as well as in the brilliant colours with which many of them are adorned, these beetles exhibit an affinity with the Cleridæ more close than any other family of the group.

They are remarkable for the singular vesicles which many of them are capable of suddenly extruding from the thorax and abdomen on being frightened.

Subfam. *MALACHIIDES.*

The Melyridæ are divisible into three subfamilies, the last of which, the Prionocerides, is peculiar to Africa and the East.

The Malachiides are for the most part small insects, abundant in the temperate parts of the Old World, rarer in tropical countries. While America north of Mexico has at least sixty-five representatives, the diligent researches of MM. Sallé, Boucard, and Mr. Champion, with other collections added, do not bring forward more than a dozen and a half from Central America. They have been excellently monographed by Erichson.

COLLOPS.

Collops, Erichson, Entomographien, p. 54.
Megadeuterus, Westw. Trans. Ent. Soc. ii. p. 98.

The species of this genus have apparently ten-jointed antennæ, the second joint being very small; the third is distorted, and in the male much enlarged, as is well shown in Tab. VI. fig. 21.

1. Collops bipunctatus.

Malachius bipunctatus, Say, Journ. Ac. Nat. Sci. Phil. iii. p. 185; Amer. Ent. iii. t. 48 [1].
Collops bipunctatus, Erichs. Ent. p. 55 [2].

Hab. United States, Arkansas [1].—Mexico [2] (*Sturm, coll. Sallé*).

2. Collops aulicus. (Tab. VI. figg. 21, 22.)

Collops aulicus, Erichs. Ent. p. 55 [1].

Hab. Mexico [1] (*Sallé*), Toluca, Puebla (*Sallé*), Guanajuato (*Dugès, coll. Sallé*).

The figures are taken from specimens in Sallé's collection, without exact locality, from Mexico.

3. Collops tricolor.

Malachius tricolor, Say, Journ. Ac. Phil. iii. p. 182; Amer. Ent. iii. t. 48 [1].
Collops tricolor, Erichs. Ent. p. 47 [2].

Hab. United States, Mississippi [1].—Mexico [1 2], Etla, Parada (*Boucard, coll. Sallé*), Puebla (*Sallé*), Oaxaca (*Höge*).

4. Collops femoralis.

Nigro-cæruleus; antennarum basi, ore, prothorace, pedibus basi abdomineque rufis, elytris subviridi-cæruleis. Long. 5½–6 millim. ♂ ♀.

Hab. Guatemala, near the city (*Champion*).

I should scarcely have given this specific rank but that the differences of several other species of *Collops* are mainly those of colour, and all the specimens collected by Champion near the city of Guatemala agree in having the legs red as far as the knees. With these a single specimen, from Guatemala, in Sallé's collection agrees; and they appear to be a trifle longer and to have the elytra more of a green tint than they are in *C. tricolor*. It therefore appears to be at least entitled to a name as a local race or variety.

5. Collops geminus.

Collops geminus, Erichs. Ent. p. 58 [1].

Hab. Guatemala, Chiapas (*Sallé*), Dueñas, Guatemala city (*Champion*); Nicaragua (*Sallé*), Chontales (*Janson*).—Venezuela, La Guayra [1].

6. **Collops histrio.**

Collops histrio, Erichs. Ent. p. 59[1].

Hab. United States, California[1].—Mexico, Etla, Oaxaca (*Boucard, coll. Sallé, Höge*), Misantla, Cerro de Plumas (*Höge*); Guatemala, San Gerónimo, Guatemala city (*Champion*).

Although the specimens in Sallé's collection stand under the name "*quadrimaculatus*, Say," they agree more closely with the species to which I refer all the specimens collected by Höge and Champion. *C. histrio* differs, according to Erichson, from *C.* 4-*maculatus* in the basal cyaneous spots touching the suture and external margins, and is a little larger on the average. They are evidently very nearly allied to each other.

7. **Collops decorus.**

Collops decorus, Erichs. Ent. p. 59[1].

Hab. Mexico[1] (*Sturm, coll. Sallé*).

Differs from *C. geminus* by the unspot ed thorax and red abdomen. I observe, however, that in specimens of *C. geminus* from Guatemala the segments of the abdomen are red with a pitchy centre, or a wide spot on each side, while in one at least of the two specimens named *C. decorus* in Sturm's writing, the femora are red, and in the other are, with the abdomen, obscure, the specimens being old. The identification of these specimens must therefore be considered a little doubtful.

8. **Collops vittatus.** (Tab. VI. fig. 23.)

Malachius vittatus, Say, Journ. Ac. Phil. iii. p. 184[1]; Amer. Ent. iii. t. 48.
Megadeuterus haworthi, Westwood, Trans. Ent. Soc. ii. p. 98, t. 10. fig. 9[2].
Collops vittatus, Erichs. Ent. p. 61[2].

Hab. United States, Mississippi[1].—Mexico[2], Puebla, Orizaba (*Sallé*), Misantla (*Höge*).

The specimen figured is a variety which wants the thoracic spots, from Puebla. The two spots are present in a single specimen from Misantla, and in one from Orizaba.

ANTHOCOMUS.

Anthocomus, Erichson, Entomographien, p. 97.

The European *Anthocomi* are well known as gay little insects delighting in flowering herbage in summer. The species which have the second joint of the tarsi of the male produced so as to cover the two following are now generally placed in *Attalus*. The males of some species have the apex of the elytra indented and with appendages; but I have not yet seen a Central-American species of this form.

1. **Anthocomus plagiatus.**

Niger, nitidus; prothorace rufo, plaga lata discoidali nigra; elytris griseis, cinereo-pubescentibus, nigro-pilosellis. Long. 4 millim. ♀.

Hab. GUATEMALA, Calderas (*Champion*).

Head nearly as wide as the thorax, broadly impressed in front, black, the front and sides as far as the insertion of the antennæ testaceous; the antennæ are faintly serrate from the fifth joint; the two basal joints are yellow beneath. The thorax is orbiculate, rather broader than long, red, with a broad black central vitta, which does not touch the front margin. The elytra are ashy grey, opaque. Body beneath and legs black.

Var.? Thoracis disco nigro limbo posteriore et angulo antico tenuissime testaceis.

Hab. GUATEMALA, Calderas (*Champion*).

Three specimens from Calderas differ in having the thorax nearly totally black; but as two of these have the narrow testaceous edge wider at the front and hinder angles, they will probably be only regarded as varieties of *A. plagiatus*.

2. **Anthocomus byssinus.**

Anthocomus byssinus, Erichs. Ent. p. 109 [1].

Hab. MEXICO [1].

I have not been able to identify this species. It is apparently near to the variety described above, but with a lateral vitta on the margin of the elytra.

3. **Anthocomus maculosus.** (Tab. VII. fig. 1.)

Rufus, nitidus; prothoracis maculis duabus, elytrorum basi maculisque duabus magnis subrotundatis prope apicem, mesosterno, femoribus (anticis et intermediis intus rufis, posticis basi rufis), antennis, tibiis et tarsis nigris. Long. $3\frac{1}{2}$ millim. ♂.

Mas. Tarsi antici articulis duobus primis rufis, art. 2° supra lobato.

Hab. GUATEMALA, San Gerónimo (*Champion*).

Var. Capite prothoraceque nigris, ore testaceo. ♀.

Hab. GUATEMALA, Chiacam (*Champion*).

Shining, very obsoletely pubescent, and with a few black erect hairs here and there. Head and thorax red, the former faintly clouded on the crown, the latter with two conspicuous round spots, one on each side. The elytra have a band at the base scarcely so wide as the length of the thorax, and a large, round, but somewhat irregular spot near the apex black; they are convex, and evenly widened a little behind. Underneath the only black part is the metasternum. The variety only differs in having the head and thorax black above, the mouth being yellow: there are two specimens from Chiacam which agree in this respect, and which are females; it is therefore possibly a sexual distinction. The antennæ are black, with two or three joints at the base testaceous, in the female variety spotted with black above.

4. **Anthocomus pusillus.** (Tab. VI. fig. 24.)

Rufus; elytrorum basi et macula magna subapicali, antennis, tibiis et tarsis, cum metasterno nigris; femoribus anticis et intermediis supra, posticis basi excepta nigris. Long. 2 millim.

Hab. Mexico, Cordova (*Sallé*).

Var.? Occipite prothoracisque limbo frontali nigris; elytris magis nitidis.

Hab. Mexico, Cordova (*Sallé*).

This differs from *A. maculosus*, "type" form, in being very much smaller, and in wanting the thoracic spots. The specimen figured has the scutellum yellow; but it is black in the supposed variety.

There was only a single specimen of each in Sallé's collection.

5. **Anthocomus basalis.** (Tab. VI. fig. 25, *A. rufipennis*.)

Anthocomus basalis, Erichs. Ent. p. 110[1].

Hab. Mexico, Cordova, Teapa (*Sallé*), Cerro de Plumas (*Höge*); Guatemala, Senahu, San Joaquin, San Gerónimo, Paso Antonio, Capetillo, Zapote, Mirandilla (*Champion*); Nicaragua, Chontales (*Janson*).—South America, Colombia [1].

The specimen figured as "*Anthocomus rufipennis*" is one from Teapa.

As might be expected in so widely distributed a species, this insect is very variable in colour and size. Although Erichson mentions several varieties, yet there are several others in the series collected by Champion and in the Sallé collection which it will be better to classify as follows:—

- α. Head, thorax, and elytra with scutellum red, unspotted.
- β. Like α, but with a small black humeral spot.
- γ. The same, but with a black basal band and black scutellum.
- δ. Thorax piceous, elytra with a black basal spot. Legs, head, and underside red, clouded with pitchy.—*A. basalis*, Er.
- ε. Head and thorax black; elytra with a small shoulder-spot.—*A. rufipennis*, Gorh. (Tab. VI. fig. 25.)
- ζ. Head, thorax, and base of elytra, with scutellum black.
- η. Head and thorax black; elytra red, unspotted.

6. **Anthocomus discimacula.**

Anthocomus varians (Dugès), Sallé coll.

Niger, nitidus; prothorace rufo macula discoidali sat magna marginem anticam attingente nigra, elytris nigro-cyaneis. Long. 2 millim.

Var.? Thoracis disco nigro-cruciato, femoribus anticis subtus testaceis.

Hab. Mexico, Guanajuato (*Dugès, coll. Sallé*).—Var. Jalapa (*Höge*).

The head, antennæ, body, and legs are black; the thorax orbiculate, red, with a very distinct black patch on the disk extending to the front. In one specimen (probably

male) the front legs are testaceous, excepting their bases and tarsi; and the antennæ are pale, with the middle joints spotted above. The elytra are blue-black, with a fine cinereous pubescence, but without erect pile.

I have not adopted the name attached to this insect (but, I believe, not published), as it did not appear appropriate, the four specimens from Dugès's collection being closely alike.

I have only seen a single one of the variety taken by Höge.

7. **Anthocomus æneo-picipennis.**

Flavus; elytris æneo-piceis vel viridibus, scutello obscure testaceo, pedibus posticis (basi excepta) fuscis. Long. $2\frac{1}{2}$ millim.

Hab. Mexico, Jalapa (*Höge*).

This seems a clearly distinct and easily recognizable species; the whole body beneath, with the head and thorax and appendages, being testaceous yellow. The elytra in two specimens brassy, with a greenish iridescent reflection, and in two decidedly green: these are smaller, perhaps maturer, specimens; and their antennæ are infuscate towards the apex.

8. **Anthocomus laticollis.**

Anthocomus laticollis, Erichs. Ent. p. 112[1].

Hab. Mexico[1].

I have not been able to identify any of the species I have seen with Erichson's description.

9. **Anthocomus sapphirinus.**

Niger; prothorace rufo nigro-notato vel nigro, elytris cæruleis fere glabris, capitis fronte, tibiis tarsisque testaceis. Long. $1\frac{1}{2}$–2 millim.

Hab. Mexico, Jalapa (*Höge*).

Distinct from any other species known to me by the almost glabrous elytra and their curious blue iridescent hue; some specimens have them of an olive-green tint. The thorax is variable in colour, from red with a central dark line to black. The antennæ and tarsi are infuscate in front.

Nine specimens (five with black, four with red or spotted thorax) in Höge's collection.

10. **Anthocomus nigro-æneus.**

Niger, supra æneo-micans; antennis basi, tibiis tarsisque basi piceis, elytris obsolete nigro pilosellis. Long. 2 millim.

Hab. Guatemala, Cerro Zunil, San Gerónimo, El Jicaro (*Champion*).

This little species is rather narrowed in front; the labrum is whitish, black at its base; the antennæ are dark, with a few joints reddish at the base, scarcely so long as the head and thorax; the joints subequal, from the second onwards a little longer than wide, scarcely serrate; on the front of the head are two faint impressions. The thorax is suborbiculate, a little truncate in front, shining, without visible punctuation. The elytra are shining brassy black, widening behind, and with their apices conjointly broadly rounded. The legs are black, with the tibiæ and base of the tarsi pitchy red; occasionally the front and middle femora are red also on their internal sides.

Four specimens from San Gerónimo, two from El Jicaro, and two from Cerro Zunil are referable to this species.

ATTALUS.

Attalus, Erichson, Entomographien, p. 89 (1840).

The only trenchant character by which this genus is separated is the structure of the second joint of the front tarsi in the male sex. According to my own observation they are less convex and less widened behind than *Anthocomi* or *Ebœi*; and some have the head more produced into a muzzle, on which the antennæ are inserted; but this does not apply to all the species.

About fifty species have been assigned to *Attalus* from Europe and the bordering districts, especially from the Mediterranean shores; and there are twenty-three species in Crotch's list from North America.

The species described here must be regarded as somewhat doubtfully assigned to the genus.

1. **Attalus sericans.**

Niger, supra subæneo-cinereus; elytris nigro-pilosellis, pube brevi densius vestitis micantibus; antennis pedibusque nigris, illis articulis tribus basalibus picescentibus. Long. 4 millim.

Hab. GUATEMALA, Panima (*Champion*).

Head subrostrate; antennæ inserted in front of, but nearer together than the eyes, their third and fourth joints rather longer than those succeeding, which are only a little longer than wide. The crown is doubly impressed between the eyes, the base rounded and well separated from the thorax. The thorax is rather shining, but clothed with very short pubescence and pile, and is a very little wider than long. The elytra are a little widened behind; they are very densely pubescent, so as to render them dull; but the pubescence is so very short, and reflects the light, that they cannot be termed opaque. The legs and underside are black.

Only one specimen has been taken of this insect.

2. **Attalus limbatus.**

Testaceus, supra nigro-piceus nitidus, subtilissime punctatus; capite antice, pronoti limbo toto, elytrorumque marginibus lateralibus et apice cum sutura testaceis; antennis piceis, basi infra testaceis. Long. $2\frac{1}{2}$ millim.

Hab. GUATEMALA, near the city (*Champion*).

A bright little distinct *Attalus*, which may be compared to the European *A. amictus*, but is more depressed; and the narrow testaceous limb of the pronotum distinguishes it from any species yet known to me. The head is clear yellow from the mouth as far back as the middle of the eyes; on this part are two spots, which, as well as the tips of the palpi and the upper surface of the antennæ, are pitchy. The thorax is wider than long; the yellow margin invades the disk in a small notch in the centre of its side, and is here redder than elsewhere. The apices of the tibiæ and tarsi are dark.

There is only one specimen I can refer to this species; a second has unfortunately been broken from the card.

3. **Attalus anthobioides.**

Testaceus; capite supra pone oculos, prothorace, elytrorum basi tenuiter, scutello pectoreque nigris; prothorace infra cum margine, præsertim ad angulos posticis, testaceis. Long. 2 millim.

Hab. GUATEMALA, Cerro Zunil (*Champion*).

Head well separated from the thorax, which it equals in size, scarcely produced in front. Antennæ, palpi, underside, mouth, and epistoma yellow; antennæ short, with the joints nearly equal in length and breadth. The margin of the thorax, legs, and elytra are pale yellow: the latter do not cover the two or three last segments of the abdomen; they are a little widened, and sometimes faintly infuscate behind; they are separately rounded, leaving the sutural angle open at the apex.

Nine specimens taken at Cerro Zunil are all I have seen that are clearly referable to this species.

4. **Attalus scutellaris.**

Testaceus, nitidus; capite supra pone oculos, prothorace (limbo excepto), scutello vittaque subscutellari, postice attenuata, ante apicem desinente, nigro-æneis. Long. $1\frac{1}{2}$–2 millim.

Hab. MEXICO, Jalapa (*Höge*); GUATEMALA, Panajachel, and near the city (*Champion*).

Very near the preceding species; but, in addition to the vitta at the base of the suture, it differs in the form of the head, which is not so distinct from the prothorax, in the brassy tint of the dark parts, in having the antennæ fuscous above, and in the thorax not being so short.

The specimen from Mexico is but doubtfully of the same species as the type, which is from Panajachel, where two specimens (which quite agree with one from Guatemala city) were taken by Mr. Champion.

5. **Attalus caraboides.**

Oblongus, testaceus, supra nigro-æneus, pectore abdominisque lateribus piceis; trochanteribus distantibus, intermediis dentiformibus; antennis pedibusque ferrugineis, femoribus posticis supra infuscatis. Long. $2\frac{1}{2}$ millim.

Hab. Guatemala, Panajachel (*Champion*).

Mouth testaceous; antennæ rusty red, basal joint spotted with dark above. Thorax subquadrate, nearly as wide as the base of elytra, entirely brassy black above, with faint indication of punctures, especially towards the sides, which are a little foveolate. The elytra are nearly black, finely and obsoletely punctate, not much widened posteriorly. The trochanters are remarkable, the middle pair being produced into a sort of tooth, and the anterior and posterior pairs standing out more from the femora than usual; the hind pair are pitchy; the other two, with the whole of the coxæ, are red. The produced second anterior tarsal joint is very long and easily observable.

This is the only insect of this whole family in which I have noticed the character of the trochanters above alluded to; it is, however, the same in each of the two specimens. It may indicate a separate genus, or may be only an unusual sexual distinction, the specimens appearing to be males by the front tarsi.

6. **Attalus nigritulus.**

Niger, nitidus; ore, capite subtus pedibusque anticis basi interdum piceis. Long. $2\frac{1}{2}$ millim.

Hab. Mexico, Cordova (*Sallé*), Jalapa (*Höge*).

This species is black entirely, excepting the mouth and underside of the head (and in some specimens the base of the front femora), which are pitchy red. The elytra are depressed and widened behind, and, with the thorax, are not punctured. The sides of the thorax are much depressed, giving its disk a cylindrical appearance.

EBÆUS.

Ebæus, Erichson, Entomographien, p. 113.

The insects comprised in this genus are very closely allied to the *Anthocomi*. I have found no American species with the elytra having appendicles. The three species here recorded are small, short, and much widened behind, with distinct punctuation. The *Ebæi* proper inhabit Europe and the countries bordering the Mediterranean, from which district about thirty have been described. The *Hyphebæi* of Kiesenwetter, to which he has attributed a species from Japan, are more like *Attali*. Two species from the latter country are referred by him to *Ebæus*. The North-American species, four in number, are now separated under the name *Pseudebæus*, Horn.

1. **Ebæus æneo-virens.** (Tab. VII. fig. 2.)

Latus, obovatus, nigro-piceus, supra æneo-virens nitidus; elytris convexis, postice fortiter ampliatis, parce profunde punctulatis; antennarum basi, tibiis tarsisque testaceis, his articulo ultimo, illis apicibus infuscatis. Long. $2\frac{1}{2}$ millim.

Hab. GUATEMALA, Calderas (*Champion*).

Broader and more convex than any of the preceding species of this family, or, indeed, than any species with which I am acquainted, it is also easily recognized by the coarse large punctures of the elytra. The head is scarcely impressed, and, with the thorax, is usually bronzy green; the thorax and elytra have a few erect hairs.

A large number of this species were taken at Calderas. A few vary in being more coppery in tint. I cannot distinguish the sexes.

2. **Ebæus seminulum.**

Anthocomus seminulum, Erichs. Ent. p. 112[1].

Hab. GUATEMALA, near the city, Paso Antonio (*Champion*).—SOUTH AMERICA, Caracas[1].

The characters which separate this tiny species from *E. minimus* seem to be its slightly larger size, rather more infuscate legs and antennæ, black labrum and clypeus, and less transverse thorax. In all these points the specimens I have identified with Erichson's insect differ from the next as described by him. But in such very minute species of a difficult family nothing but a comparison of specimens from both localities can, I think, settle the question of their identity or difference.

3. **Ebæus minimus.**

Anthocomus minimus, Erichs. Ent. p. 113[1].

Hab. GUATEMALA, San Gerónimo, Pantaleon; PANAMA, Volcan de Chiriqui (*Champion*). —SOUTH AMERICA, Colombia[1].

The very small size (scarcely more than $1\frac{1}{2}$ millim.) of this insect, together with its nearly entirely testaceous legs and antennæ, sufficiently separate it from any other black species of the family. Very small examples of *A. anthobioides*, and of some other fasciate and maculate undescribed species, are almost or quite as small. Neither this nor the preceding appear to be as common as *E. æneo-virens*, judging by the few specimens sent.

DROMANTHUS.

Antennæ 11-articulatæ, serratæ. Caput paulo productum. Tarsi quadriarticulati, articulis 2° et 3° bilobatis; ungues simplices. Elytra ampla, postice vix latiora, abdomen tegentia. Corpus alatum.

The insects for which this genus is proposed would appear to hold some affinity with Erichson's genera *Lemphus* and *Carphurus* by reason of the four-jointed tarsi. They have not, however, the shortened elytra of those genera. They have quite the facies

of *Anthocomus*. The larger species (*opacus*) is in form very like *Collops*, which it was placed with in the Sallé collection.

1. **Dromanthus opacus.**

Niger vix nitidus; ore, epistomate, thoracisque lateribus late rufis; elytris opacis, fumosis, lineis duabus abbreviatis elevatioribus. Long. 6 millim.

Hab. Mexico, Playa Vicente (*Sallé*).

This insect has very much the appearance of a *Collops*; but its colours are unlike those of the members of that genus. It is entirely smoky black, with the front of the head, the sides of the thorax, the coxæ, and trochanters of the anterior and middle legs red. The antennæ are acutely serrate from the fourth to the tenth joint, the third joint being angular internally. The basal joint is yellow beneath. The palpi have their apical joint oval, but a little truncate.

A single specimen of this is all I have seen.

2. **Dromanthus decipiens.** (Tab. VII. fig. 5.)

Niger, nitidus; prothoracis lateribus læte rufis. Long. $4\frac{1}{2}$ millim.

Hab. Panama, Volcan de Chiriqui (*Champion*).

This species is allied to *D. opacus*; but it is smaller, and the elytra especially are more shining. These latter are distinctly punctured, the smaller and larger punctures very irregularly mixed. The thorax is very even and orbiculate, wider than long, being broadly truncate in front. The erect hairs are very sparingly present. The basal and one or two succeeding joints of the antennæ are spotted with pitchy red beneath. The fourth to tenth joints are acutely serrate. The coxæ and trochanters of the first two pairs of legs and the margins of the basal four ventral plates are yellowish.

Two specimens, one of which at least is a male, present no important difference.

This species is coloured almost precisely as *Anthocomus plagiatus*, and as a Clerid of the genus *Colyphus* also.

3. **Dromanthus quadrimaculatus.** (Tab. VII. fig. 4.)

Rufo-ferrugineus, nitidulus; antennis, pedibus, elytrorumque maculis duabus (una basilari quadrata, altera subapicali lunata) nigris. Long. $4\frac{1}{2}$ millim.

Hab. Nicaragua, Chontales (*Janson*).

This is a very different-looking species from either of the preceding, both in colour and in having the thorax rather smaller in proportion to the elytra, and the head rather more produced in front. The chief characters are, however, the same: only four joints can be distinguished in the tarsi; the antennæ are serrate, their basal joints are reddish beneath.

A single specimen.

4. **Dromanthus jucundus.** (Tab. VII. fig. 6.)

Niger, prothorace femoribusque rufis; elytris læte cyaneis, maculis duabus (una subbasalari prope suturam, altera transversa mediana) apiceque late pallide testaceis; antennis serratis, articulis quinque apicalibus pallidis. Long. $4\frac{1}{2}$ millim.

Hab. Panama, Bugaba (*Champion*).

Head, mouth, and palpi black. Antennæ with five or six joints at the base fuscous above, pale beneath, the apical five quite pale. Thorax transverse, shining, yellow, elliptical above. Elytra wider at the base than the thorax, and expanding to nearly twice its width near the apex, shining steel-blue, with a spot on each near the base; a broad but interrupted fascia not reaching the margin, and the apex rather broadly whitish yellow, which there runs a little way up the suture; their surface is impressed with irregular somewhat confluent punctures in the middle; and there is a very thin brown pile which is only conspicuous at the margins of the thorax and elytra.

Only one specimen of this, which is perhaps the most beautiful of the Central-American *Melyridæ*, has been received as yet.

Subfam. *MELYRIDES.*

The second section of the *Melyridæ* is not a very homogeneous group, embracing two tolerably distinct types of beetles, which may roughly be separated into a more or less hairy group, the *Dasytides*, and those which have the surface almost hairless and with deeper sculpture, the *Melyrides* proper. For the purpose, however, of the present work it will be sufficient to consider them a single subfamily, as the representatives in Central America are few.

The first subsection is abundantly represented by species of small size, chiefly from the warmer parts of Europe and the Mediterranean district; but a few (which are now generally separated from *Dasytes*) occur in North America, but are nearly or perhaps entirely confined to the Pacific side, and in *South* America to Chili.

The distribution of the true Melyrides is more universal. *Chalchas* and *Astylus* are almost confined to South America, *Melyris* to Africa and India, *Arthrobrachys* to Chili. Australia, Madeira and the Canaries, Mauritius, and Persia furnish each small abnormal genera; and this is again the case in North America. The erection of the genus *Rhadalus*, Leconte, into a subfamily is, of course, only the natural local expression of this view.

PRISTOSCELIS.

Pristoscelis, Leconte, Col. N. Am. i. p. 193.

The North-American species of *Dasytes* which are furnished with appendages to the claws are grouped by Leconte in this genus. I only include here three species which have erect hairs on the body. They may also be separated from the species I place

in the following genus by not having the front of the thorax finely raised and margined.

About thirty species are recorded, all occurring in America north of Mexico.

1. **Pristoscelis nigro-æneus.**

Oblongus, postice paulo ampliatus, nigro-æneus, nitidus, dense sat fortiter punctatus; capite prothoraceque nigro-pilosellis; elytris breviter cinereo-pubescentibus. Long. 4–5 millim.

Hab. Mexico (*Sallé*), Jalapa, Oaxaca (*Höge*).

This and the next species are very nearly allied; independently of size, however, they are differently punctured. In the present species the thorax is smooth and shining, covered with separate punctures, leaving room between each for another puncture. The elytra are more closely punctured; and the punctures are sometimes confluent, especially towards the base of the suture.

Five specimens were in Höge's collection from Jalapa, and two from Oaxaca, agreeing closely in size. Eight in Sallé's collection are smaller, but are otherwise similar.

2. **Pristoscelis salvini.**

Oblongus, subparallelus, nigro-æneus, nitidus; capite prothoraceque crebre, subtiliter, elytris minus dense sat fortiter punctatis. Long. 3 millim.

Hab. Guatemala, Volcan de Fuego (*Salvin*).

I have pointed out above the close puncturing of this species and its smaller size as compared with *P. nigro-æneus*; the colour is very similar, viz. nearly black, with a faint brassy reflection. The thorax has the small punctures so close as to be confluent in places; and a very fine raised line can be traced in its centre from near the base to the front.

Eight specimens of this species were captured by Mr. Salvin on flowers of *Arenaria bryoides*, var. *guatemalensis* (*cf.* Botany, i. p. 70, t. 4), growing at the summit of the Volcan de Fuego, 13,100 feet above the sea.

3. **Pristoscelis pubescens.** (Tab. VII. fig. 10.)

Oblongus, subparallelus, plumbeo-niger, nigro pilosellus, cinereo-pubescens; capite prothoraceque subtiliter, elytris parcius et fortius punctatis. Long. $5\frac{1}{2}$–6 millim.

Hab. Mexico, Guanajuato (*Dugès, coll. Sallé*).

The three specimens of this belong to a very distinct species, being considerably larger than *P. nigro-æneus*, and with the thorax very much more finely and closely punctured. The antennæ are short, and have the five joints before the apical one strongly transverse.

I have examined the membranous lobes of the claws of this species, and find they are rounded at their apices, and are not quite so long as the claw itself.

LISTRUS.

Listrus, Motschulsky, Bull. Mosc. iv. p. 389 (1859).

Listrus is the American representative of the European *Danacæa*: they are little beetles with depressed pubescence, but without erect hairs; and the front tibiæ want the setæ which distinguish *Pristoscelis*.

Ten species have been described from California and the central States.

1. **Listrus cupreo-nitens.** (Tab. VII. fig. 8.)

Elongatus, subcylindricus, plumbeo-cinereus, cupreo-nitens, pube brevi cinerea densius vestitus, crebre obsolete et vix distincte punctatus; elytris ad apicem attenuatis, subgibbosis; pedibus et antennis nigris. Long. $3\frac{1}{2}$–4 millim.

Hab. GUATEMALA, Quiche Mountains, Quezaltenango, Capetillo (*Champion*).

The whole upper surface, and sometimes the upperside of the femora, is clothed with a very fine, silky, close pubescence; and this, with the fine punctuation and metallic leaden or coppery tint, give it a beautiful "frosted" appearance. The antennæ have the apex of the basal and two or three of the succeeding joints pitchy red. The head is even, without impressions; the thorax widens suddenly in the middle, where the width is rather greater than the length.

2. **Listrus subcyaneus.**

Elongatus, subcylindricus, paulo depressus, niger, supra subcyaneus, pube brevi parcissime vestitus, subtiliter crebre punctatus; elytris ad apicem parum attenuatis, subgibbosus. Long. $3\frac{1}{2}$–$4\frac{1}{2}$ millim.

Hab. GUATEMALA, Totonicapam (*Champion*).

This insect is amply distinguished from *L. cupreo-nitens* by being wider and more depressed, and by being almost free from pubescence, as well as by its blue colour. The antennæ often have the apical joint pitchy red.

Ten specimens agree very closely in these characters; two have the pubescence rather more uniformly spread over the whole upper surface; but it is still much shorter and thinner than in *L. cupreo-nitens*. The head is usually more coppery than the rest of the body; and the thorax is transverse, with appreciable hind and front angles.

3. **Listrus æneus.**

Elongato-ovalis, convexus, antice posticeque attenuatus, niger, supra æneus, nitidus, crebre haud profunde punctatus; antennis pedibusque rufis, his tarsorum articulo ultimo, illis articulis tribus apicalibus et basali nigris. Long. $4\frac{1}{2}$ millim.

Hab. MEXICO, Oaxaca (*Höge*); GUATEMALA, Panima (*Champion*).

Though there are but two specimens of this species, its distinctness from any other cannot, I think, be doubted, if the convex evenly oval form and the red legs are observed. The only species to which it approaches is *L. corallipes*; but it is nearly twice as large,

and of a different shape. It is curious that both species have occurred in Mexico, as well as in the district of Vera Paz. There are red-legged *Listri* described by Leconte; but I think it hardly likely these will prove identical with either of them. From *L. rotundicollis*, Lec., the size alone separates the present insect.

4. **Listrus versicolor.**

Oblongus, parum depressus, niger, supra cupreo-nitens; elytris subcæruleis, minus crebre sat distincte punctatis, subparallelis, apice subgibbosis. Long. 3–3½ millim.

Hab. GUATEMALA, Ostuncalco (*Champion*).

This is a parallel, slightly depressed species, with a broadish head and subquadrate thorax, of which the hind angles are broadly rounded. The antennæ and legs are entirely black. The head and thorax are more coppery and more pubescent than the elytra in my type, and in two or three other examples. The elytra are only a little depressed at their apex, and therefore only slightly of the form I have called "gibbous," by which I imply that the curvature, viewed laterally, suddenly changes at that point.

Five specimens from one locality are attributable to this species.

5. **Listrus canescens.**

Listrus canescens, Mannerheim, Bull. Mosc. ii. p. 248[1]; Dej. Cat. 3rd ed. p. 125[2] (*Dasytes*); Leconte, Class. Col. N. Am. i. p. 193.

Hab. UNITED STATES, California[1 2].—MEXICO, Alvarez Mountains (*Dr. Palmer*), Guanajuato (*Dugès, coll. Sallé*); GUATEMALA, Capetillo, Dueñas, Quiche Mountains, Quezaltenango, Guatemala city (*Champion*).

The commonest, apparently, of the genus, and, if I am right in my identification, widely distributed over the Pacific region, and possibly extending far inland. I can see no difference between it and a specimen sent me by Mr. Belfrage, which was, I believe, from California. There was a very considerable series of this sent by Mr. Champion and Dr. Palmer.

The whole genus seem to delight in districts of high elevation.

6. **Listrus punctatus.**

Oblongus, subparallelus, niger, supra æneus nitidus parcius punctatus, parce pubescens; elytra prothorace vix latiora, apice rotundata. Long. 3 millim.

Hab. MEXICO, Jalapa (*Höge*); GUATEMALA, Santa Rosa, San Gerónimo, Zapote (*Champion*).

On the average rather larger than *L. canescens*, and at once to be separated from it by its broader, more parallel, and bulkier form, by the coarser punctuation of the elytra especially, and by the very sparse depressed pubescence, which with a strong glass is easily resolved into separate hairs.

7. **Listrus corallipes.**

Oblongus, parum depressus, niger, supra ænescens, nitidulus, vix punctatus, parce pubescens; antennis pedibusque rufis, his articulo ultimo, illis ad apicem nigris. Long 3 millim.

Hab. Mexico, Toxpam (*Sallé*); Guatemala, San Joaquin (*Champion*).

About the size of *L. canescens*, but readily distinguished from any species described here (except *L. æneus*) by the red legs. The almost entire absence of distinct punctuation is also characteristic. The head is finely rugose at the base; and the thorax under a very strong glass is seen to be covered with extremely close fine punctuation; and the elytra are rugulose transversely at their bases; but the sculpture is all very fine. About five or six joints at the base of the antennæ are rusty, and the legs a fine coral-red. The coxæ are black.

Only two specimens from San Joaquin and one from Toxpam have come under my notice.

8. **Listrus metallicus.**

Oblongo-ovalis, parvulus, niger, supra æneus, nitidus, parcius sat fortiter punctatus; antennis basi, tibiis tarsisque picescentibus, his articulo ultimo nigris. Long. vix 2 millim.

Hab. Guatemala, Cerro Zunil (*Champion*).

This is the smallest species I have yet seen; it is of a more metallic brassy colour than any other, and is very distinctly punctured, with scarcely visible pubescence. The head is biimpressed just behind the insertion of the antennæ; the elytra are evenly rounded at their apex. The antennæ have the basal joint black, then two red, and the remainder black.

Two specimens only taken on Cerro Zunil.

ASTYLUS.

Astylus, Castelnau, Silb. Rev. Ent. iv. p. 32.

These are middling-sized or large insects adorned with fasciæ or vittæ, and with the head subrostrate and the upper surface hairy. They have hitherto only been recorded from South America: two species occur in Chili; one has been found in Patagonia; the rest are distributed over the southern continent, nineteen species being all that are yet described. I have a specimen from Venezuela identical with the one here recorded.

1. **Astylus vittatus.** (Tab. VII. fig. 9.)

Niger; capite prothoraceque dense nigro-pilosis; elytris rubris, sutura, apice, costis duabus in callo subapicali conjunctis et callo humerali nigris. Long. $8\frac{1}{2}$–$9\frac{1}{2}$ millim.

Hab. Panama, Volcan de Chiriqui (*Champion*).—South America, Venezuela (*coll. Gorham*).

Head and thorax black, finely punctured, clothed with very fine, and rather sparingly with depressed ashy-grey pubescence, and rather thickly with long, erect, black hairs; antennæ black, the basal joint at its apex and the two following obscurely pitchy red. Elytra long, rather parallel, and flattish above, with coarse, deeply impressed, evenly-scattered punctures, and erect black hairs. Two distinct costæ are to be seen, which are always black, and connected before the apex by a black callosity; they are also sometimes connected with the black suture by a streak from the humeral callus, from which the outer costa commences, leaving a red basal spot. The intercostal red space is widened at its apical end; and this portion shows indications of becoming detached; the lateral limb of the elytra is always red, and the apex black.

The figure is of one of six specimens taken by Champion on the Volcan de Chiriqui.

MELYRODES.

Caput breve, haud rostratum. Antennæ perbreves, thoraci longitudine æquales. Pronoti margines subelevati, ad latera crenulati. Elytra fortiter subseriatim punctata, lineis una vel duabus elevatioribus. Corpus parvum.

This genus is very similar in so many points to *Melyrosoma*, Wollaston, that it will be sufficient to point out those characters in which it differs. The head is shorter; and the antennæ are both much shorter, regard being had to proportion, and are also not serrate. The body is less depressed; and the elytra only exhibit faint traces of one, or at the most two, raised lines.

It is interesting to find an insect in Central America which so much resembles an aberrant form from the Canaries.

I have not seen the two species of *Melyris* described by Leconte, but have no doubt they will have to be separated from *Melyris* proper.

1. **Melyrodes crenata.**

Nigra, parum nitida; capite omnium creberrime subtiliter punctato; prothorace transverso, margine elevato, disco convexo, subtiliter crebre punctato, lateribus crenatis, antice paululum angustatis; elytris postice latioribus, fortiter punctatis. Long. 2 millim.

Hab. GUATEMALA, Las Mercedes, Cerro Zunil, Panajachel (*Champion*).

Black, with the exception of one or two joints at the base of the antennæ, and the knees and tarsi, which are a little pitchy red. The antennæ are short, their length about equal to that of the thorax; their middle joints are angular within, but not strongly serrate as in *Melyrosoma*. The thorax narrows in front, its greatest width being shortly before the base. The elytra are very even—the raised lines, even when present, being very faint,—rather distinctly margined, especially at the apex. The punctures are arranged in rows, but at the base are very close and confluent.

There are two specimens from Cerro Zunil, and one from each of the other localities.

Fam. CLERIDÆ.

For the purposes of this work the Cleridæ are treated as a simple family of the Malacoderm tribe. The characters which separate them are so trenchant that Lacordaire has given them coordinate rank with the whole of the Malacodermata. We have here, as in the preceding family, carnivorous beetles, but with a firm corneous exoskeleton. The antennæ are of the true serricorn type, but are modified into the clavate form in the majority of the genera. The Cleridæ are predaceous, feeding upon the larvæ, and perhaps upon the perfect insects, of many wood-boring beetles. Hence they are generally of a cylindrical or depressed form, which permits of their penetrating the bores of such insects. Some few, however, are rather inquilines in their habits, chiefly among the Corynetides; and some have the reputation of inhabiting, by preference, the nests and cells of Hymenoptera, upon whose larvæ their own are nourished.

Subfam. *TILLIDES.*

The Tillides are not so extensively represented in America as in the Old World and the East. Two genera only are found in Central America. Hitherto a single species of *Tillus* (*T. collaris*, Spin.) has been found on the northern continent, and there only in the United States.

TILLUS.

Tillus, Oliv. Ent. ii. no. 22 (1790).

Many of the species referred to *Tillus*, and so recorded in the Munich Catalogue, do not belong to the genus or subfamily. Typical *Tilli* occur in Europe and the northern parts of Africa and in Arabia, also in India and the Eastern Isles as far as Japan, and one, as noticed above, in North America.

1. **Tillus occidentalis.** (Tab. IX. fig. 1.)

Niger, nitidus, parce pilosus; capitis fronte, ore, antennis basi, palpis tibiisque rufo-piceis; elytris macula subbasilari fasciaque ad suturam versus basin recurvata albis, eburatis; antennis 10-articulatis, articulis quarto ad nonum fortiter dentatis. Long. 3–5 millim.

Hab. MEXICO (*Sallé*); GUATEMALA, Chacoj, Pantaleon (*Champion*); NICARAGUA, Chontales (*Belt*).

Head and thorax densely and coarsely punctured, the former dark reddish in front, the latter usually black, but sometimes tinged with red on the front margin and at the base, where it is also suddenly contracted. The antennæ are, in the smaller examples, two thirds of the length of the body; the first joint swollen moderately, the second very small, the third triangular, one angle internal, the fourth to the ninth strongly dentate, the width being greater than the length; the tenth oval. The elytra are shining, sparsely punctured, more strongly so at the sides and near the base. In the female (?) the antennæ are shorter in proportion, and the elytra do not cover the apex of the abdomen. Only five examples have been captured, in addition to two in Sallé's collection.

The specimen figured is an example from Chacoj.

CYMATODERA.

Cgmatodera, Gray, Griff. An. Kingd. i. p. 375 (1832).

Allowing for synonymous names, there are about thirty species of this genus at present described, all but three (which are from South America—Colombia or Orinoco) being found in the United States and Mexico. One species (*C. modesta*, Spin.?) is said to be found in Chili; however that may be, Spinola gives Mexico as the country of his species, but figures it under a different name.

The genus appears to reach its greatest development in size and number of species in Central America, the series obtained by the collectors employed by the editors of the present work exceeding what I have seen in any private collection or museum in variety and number of specimens.

1. **Cymatodera hopei.**

Cymatodera hopei, Gray, Griff. An. Kingd. i. p. 375, t. 48. fig. 1[1]; Klug, Mon. i. p. 270[2]; Spin. Mon. i. p. 141, t. 9. fig. 5[3].

Notoxus giganteus, Dej. Cat. ed. 3, p. 126.

Hab. Mexico [1 2 3], Orizaba, Parada (*Sallé*), Guanajuato (*Dugès, coll. Sallé*), Oaxaca (*Höge*).

This fine insect, one of the largest species of the family, appears rare. Both sexes were in the Sallé collection. The males have the fifth ventral plate arcuate emarginate, and the sixth narrow and polished; in the females the same segment is short and rounded, and its surface is punctured.

2. **Cymatodera sallæi.** (Tab. VII. fig. 13.)

Cymatodera sallei, Thoms. Mus. Scient. p. 49[1].

Cymatodera emarginata, Chevr. Mém. sur la Fam. des Clerites, p. 8[2].

Hab. Mexico [1], Vera Cruz (*Sallé*), Cordova (*Sallé* [2]).

I do not think there is any doubt that these two descriptions refer to the same species. The specimen from Vera Cruz (*C. sallæi*, Sallé coll.) is rather larger, and is a little less distinctly marked than the two examples of *C. emarginata*. They are all males, and have the apex of the elytra arcuate-truncate, a character which separates this species from any other known to me. The figure is that of a Cordova specimen.

3. **Cymatodera grandis.**

Notoxus grandis, Sturm (coll. Sallé).

Fuscus; antennis, palpis tarsisque pallidioribus; elytris sordide pallidis, fusco marmoratis vel strigosis, seriebus obsoletioribus punctorum gemellatis. Long. 14–16 millim. ♂ ♀.

Hab. Mexico (*coll. Sturm*), Guanajuato (*Dugès, coll. Sallé*), Puebla (*Sallé*).

Thorax narrower behind than in front, widened on the sides in the middle, much compressed laterally below the widest part, the disk finely wrinkled transversely above; elytra parallel, apex rounded; sutural angle nearly closed, without striæ, but with punctures in series, of which there is one sutural, then four pairs of gemellate series, very obsolete in the female from Sturm's collection—closer and more regular in three examples which are, I believe, males of the same species. The male has the apex of the pygidial plate canaliculate, the fifth ventral plate widely emarginate, with a carina from each side of the excision.

This species appears to me to be allied to *C. discoidalis*, Chevr., but to be distinguished from it by being more parallel, by the more indeterminate fuscous markings of the elytra, which are also less pointed at their extremity.

4. **Cymatodera discoidalis.** (Tab. VII. fig. 10, var. fig. 15.)

Cymatodera discoidalis, Chevr. Mag. Zool. 1843, p. 10[1].

Hab. Mexico [1], Jalapa, Oaxaca, Cerro de Plumas (*Höge*).

This insect, of which the unique type has most obligingly been sent to me by M. A. Chevrolat, is less parallel than the preceding; the elytra are more coarsely punctured at their base, and have a distinct fuscous patch at two thirds, squarish, with its diagonal formed by the suture. The elytra are widest at the centre of this patch, and are rather hairy. In a male specimen from Cerro de Plumas the fifth segment is arcuately excised, the sixth spoon-shaped, broadly rounded at the apex, and closely punctured. A series of this species was collected at Oaxaca and Jalapa, and two or three at Cerro de Plumas, by Höge.

The type specimen is a female, and perfectly accords with a specimen from Oaxaca, except in being a little less deeply coloured.

5. **Cymatodera championi.** (Tab. VII. fig. 12, ♂.)

Elongata, subcylindrica, picea nitida, parce pilosella; prothorace fere glabra; elytris profunde seriatim punctulatis, apice subtruncatis; antennis longis, caput et prothoracem superantibus; pedibus dilutioribus. Long. 16 millim.

Hab. Panama, Volcan de Chiriqui (*Champion*).

Head considerably wider than the thorax; antennæ long, rather longer than the total length of the head and thorax together in the male, in the female about equal in length. Prothorax very smooth and shining, wider in front than at the base, all the usual prominent parts rather strongly pronounced. The elytra in the male are more parallel and narrower than in the female, with series of large deep punctures, which are placed rather near together, and at equal distances from each other. The body beneath is pitchy black in the male; in the female it is rufous at the apex and sides of the two last segments but one. The legs are pitchy black in the male, pitchy red in

the female. The genital in the male is produced as a bifid organ, with each side grooved, and spoon-shaped at its apex above. This fine *Cymatodera* is in size and colour rather like *C. californica*, Horn. It is, however, at once to be distinguished by the large punctures of the elytra. Only two specimens have been seen by me.

6. Cymatodera pallidipennis.

Cymatodera pallidipennis, Chevr. Mag. Zool. 1843, p. 8[1].

Hab. Mexico[1] (*Sallé, coll. Chevrolat*); British Honduras, Rio Sarstoon (*Blancaneaux*). ♀.

M. Chevrolat has kindly intrusted his type of this species to me; and I am able to join with it, as identical, a single specimen which I had before doubtfully assigned to *C. championi* as a very small variety of that species, but which I feel now convinced is distinct. The size given by Chevrolat is, as he tells me, printed "millim." in error, lines of the Paris inch being intended. The type, in fact, measures $10\frac{1}{2}$ millim.; Blancaneaux's specimen 9 millim. The latter is rather more pitchy than the type, but has rufous legs; three very indistinct pitchy-red fasciæ are to be traced. It agrees with *C. championi* in the punctuation of the head, thorax, and elytra, but differs from it in having shorter antennæ (both specimens are females), and particularly in the elytra not being in the least truncate at their apex.

7. Cymatodera parallela.

Oblongo-elongata, picea; ore, antennis, palpis, abdominis apice, geniculis tarsisque ferrugineis; thorace inæquali, obsolete punctato; elytris brunneo-testaceis, prope basin et apicem fuscis, et fasciis duabus interruptis serratis (posteriore lata fere integra) piceis, striato-punctatis, striis ante apicem desinentibus. Long. 8–10 millim. ♂ ♀.

Hab. Guatemala, Cerro Zunil, San Gerónimo (*Champion*).

A species which will, I think, be easily recognized by its general parallel shape and the dark posterior fascia, which has deeply indented edges. The head is rugosely punctured, the rugæ being longitudinal; it is not very large, but is wider than the thorax. The thorax is of nearly even width before and behind, tolerably well constricted behind; the two basal tubercles and two others just behind the anterior constriction are evident, the punctuation and rugæ very obsolete. The elytra are deeply punctured in obsolete striæ, terminating a very short distance from the apex; the punctures are coarse and irregular, confluent often laterally as well as in the rows. The legs are dark brown, with paler tarsi.

A series of this species, all agreeing very nearly in colour and form, were taken at Cerro Zunil; and a single specimen from San Gerónimo is, I think, the same species, but is paler, and has pale legs and antennæ, probably owing to immaturity.

8. Cymatodera lunulata.

Ferrugineo-brunnea, subtus picea, parce pubescens; prothorace subtilius punctato; elytris fortius punctato-striatis, striis fere integris, singulis ultra medium lunula fusca ad suturam conjuncta notatis; elytris prothorace plus quam duplo latioribus, apicibus integris rotundatis. Long. 9–11 millim.

Hab. GUATEMALA, San Gerónimo (*Champion*).

The head in this species is small, being only wider than the prothorax by reason of the eyes; it is thickly clothed with a coarse depressed pubescence, and is thickly punctured at the base. The antennæ are rusty red, as long as the head and thorax; the intermediate joints are not much longer than wide, the apical one as long as the two preceding it. The thorax is very finely punctured and wrinkled in the middle; it is rather strongly constricted below the middle, and is as wide at the base as in front. The elytra are a little ovate and rather depressed; the striæ commence as series of strong and closely packed punctures, and are in places crenate; towards the apex the punctures vanish, but the striæ continue, the sutural ones uniting with the lateral (as is the mode in this genus); but the apex itself only appears irregularly punctured. The markings are confined to the central lunulate fascia, which has its concave side towards the base, and is faintly margined with paler on that side. The abdomen is piceous; but each segment is spotted on the side with rusty red.

A very considerable series of specimens were taken at San Gerónimo.

9. Cymatodera angulifera.

Oblongo-ovata, picea, elytris pallide ferrugineis nitidis, basi fasciisque tribus (mediana angulata, apicali liturata) fuscis, profunde punctato-striatis, punctis oblongis, paucis, subæquidistantibus, ad apicem evanescentibus; pedibus ferrugineis, femoribus fuscis. Long. 7–9 millim.

Hab. GUATEMALA, Dueñas (*Champion*).

At first sight hard to distinguish from *C. lunulata*, and allied to it in several of its characters; it is, however, less pubescent, and, besides the dark base, three wavy fascias are rather distinct. The central one is angulated on the centre of each elytron towards the base, and is somewhat M-shaped; from the central point of the M the suture is dark till it joins a subapical oblique fascia, which nearly meets the central one on the margin. The subapical fascia is seldom apparent in *C. lunulata*; the abdomen is similarly spotted. A series of this species were taken at Dueñas, all agreeing pretty closely; the colour of the underside and femora varies in depth from rusty red to pitchy.

10. Cymatodera geniculata.

Cymatodera geniculata, Chevr. Rev. et Mag. Zool. 1874, p. 31 [1].

Hab. GUATEMALA [1]; NICARAGUA (*Sallé*).

The type from Guatemala is before me: the punctures are large roundish pits, in

close series, vanishing a very little way before the apex, not ending in united striæ. In colour and form it is very like *C. cylindricollis*; but the sides of the thorax are more compressed below the middle, and hence the sides are more prominent in the widest part; it is also like *C. undulata*, Say, but is smaller, and the puncturing is quite different. The Nicaragua specimen agrees. Sexual characters not apparent; it is probable both are females.

11. **Cymatodera nitida.**

Picea, nitida, antennis, palpis, pedibus basi, tarsis, abdominisque apice obscure rufis; elytris testaceis, puncto humerali, fascia irregulari basali, ad suturam et ad marginem latiore triente apicali et sutura tenuiter piceis; capite thoraceque minute et sparsim punctulatis, elytris punctis subæqualiter remotis seriatim impressis. Long. 7–8 millim.

Hab. MEXICO, Capulalpam (*Sallé*); GUATEMALA, Capetillo (*Champion*).

Distinguished by the shining head and thorax, which only show few and remote small punctures under a powerful lens, and by the dark somewhat cruciform mark on the basal half of the elytra and their entirely dark apex. Only two specimens have been sent.

12. **Cymatodera texana.**

Ferruginea, supra picea; capite crebre, prothorace obsolete punctatis, hoc postice fortiter late constricto; elytris depressiusculis, piceis, striatis, striis crebre subcrenato-punctatis, fere integris, fascia mediana apiceque rufis. Long. 7–8 millim.

Hab. NORTH AMERICA, Texas (*Belfrage*).—MEXICO, Jalapa (*Höge*).

I have received several specimens of this insect from Mr. Belfrage as a new species; and a single specimen, which only differs in the darker colour of the elytra, without any apical yellow spot, was taken by Höge. It is a very distinct species, perhaps in its broad evenly striated elytra most resembling *C. cylindricollis*, but not so bulky and more shining. The legs in Texan specimens are rufous; but in the Mexican one each of the femora has a pitchy cloud on the thick part. It is also rather like *C. geniculata* in colour; but the striæ and close obsolete punctures at once remove it from that species.

13. **Cymatodera liturata.**

Oblonga, postice paulo ampliata; capite thoraceque piceis, elytris pallidis, seriebus punctorum triente ante apicem desinentibus; humero, plaga subhumerali, regione scutellari lituraque tenui ante apicem fuscis; antennis, palpis, pedibus abdomineque ferrugineis. Long. 10–12 millim. ♀.

Hab. GUATEMALA, Cerro Zunil (*Champion*).

This resembles *C. lunulata* in form, but is much less pubescent and differently coloured: though impressed with series of strong punctures, it is not striate; the punctures are often fuscous, and can thus be traced, even where quite obsolete, as fuscous spots as far as the oblique fuscous band before the apex. The breast is pitchy red.

Two specimens were taken by Mr. Champion, in both of which the sixth segment is a simple rounded ciliate plate.

14. **Cymatodera bipunctata.** (Tab. VII. fig. 16.)

Oblonga, postice paulo ampliata, ferruginea; capite prothoraceque leviter punctatis; elytris tenuissime pubescentibus, obsolete punctato-striatis, singulis post medium macula parva nigra notatis. Long. 10 millim.

Hab. Mexico, Oaxaca (*Höge*).

Sufficiently distinguished by the uniform ferruginous colour, only relieved by two distinct black spots near the middle of the elytra. The head is covered with small distinct punctures; and the thorax has them scattered here and there, and is finely wrinkled transversely near its base; but this sculpture is finer than usual. The elytra are very obsoletely striate; and the punctures are very irregular, being usually composed of three confluent smaller ones; these are often disposed transversely; and sometimes the interstices are broken up by the smaller punctures; the apex is nearly smooth at about four fifths.

Two specimens are all that have been sent.

15. **Cymatodera cylindricollis.**

Cymatodera cylindricollis, Chevr. Col. Mex. Cent. i. fasc. 1[1]; Klug, Mon. Abhand. Berl. Acad. 1842, p. 271; Spin. Mon. i. p. 148, t. 10. fig. 3.

Hab. Mexico[1], Cordova, Capulalpam, Parada, Durasnal (*Sallé*), Guanajuato (*Dugès, coll. Sallé*), Jalapa (*Höge*), San Luis Potosi (*Dr. Palmer*); Guatemala (*coll. Gorham*), Quiche Mountains (*Champion*).

A very distinct species, easily recognized by its rather robust build, antennæ about half as long as the body, very finely punctured and much compressed thorax, elytra with striæ continued to near the apex, and almost uniform brown colour, the head and thorax and a large subapical patch on the elytra being usually darker.

It appears to be a common species in Mexico.

16. **Cymatodera högei.**

Elongata, subparallela, nigro-picea, subtilissime punctata, nitida; corpore subtus elytrorumque apice rufo-piceis; elytris punctato-striatis striis fere integris, fascia mediana pedibusque pallidis, geniculis fuscis. Long. 17 millim. ♂ ♀.

Hab. Mexico, Jalapa, Trapiche (*Höge*); Guatemala, San Gerónimo, Capetillo (*Champion*).

Head as wide as the elytra at the base, finely and closely punctured; epistoma and mouth, breast and sides of the abdomen ferruginous. Thorax shining; very fine rugæ are visible on the centre of the disk; and in the Guatemala specimens (which are smaller and possibly belong to a distinct species) the whole surface is distinctly punctured.

Elytra parallel, evenly rounded at their apex, regularly and deeply punctate-striate, striæ vanishing at one sixth before the apex; pitchy brown, in the middle a rather oblique pale fascia, and the apex rusty red for one quarter the length of the elytron.

The male has the fifth ventral plate emarginate, the sixth an oblong truncate piece notched at its extremity and thickened on the sides, with a corresponding pygidial plate; the seventh or genital a bifid acute organ, like two lancets slightly recurved; this piece is often wanting, when the apex of the sixth plate only remains. The female has the sixth plate obconic, the apex rounded, with a deep impression on its ventral side.

This fine species, one of the largest of the genus, is most nearly allied to *C. fasciifera*, Lec., of the species known to me, from which it differs *inter alia* in being less pubescent, in having the legs almost entirely pale, the apex broadly ferruginous, &c.

Four specimens have occurred at Trapiche, and as many at Jalapa; in Guatemala only one each at the two localities named, which are smaller and slightly different in the punctuation, but are, I believe, specifically the same.

17. **Cymatodera flexuosa.**

Rufo-ferruginea, nitida; prothoracis lateribus piceis; elytris depressis, postice ampliatis, flavis, basi seriatim parce punctatis, plaga subhumerali lituraque subapicali piceis. Long. 12 millim. ♀.

Hab. Mexico, Orizaba (*Sallé*).

The single specimen there is of this is apparently of a very distinct species. The elytra are widened and flat above, but it is amply winged.

The head and thorax very finely and obsoletely punctured and wrinkled, pitchy red, darker between the eyes and on the sides of the latter. The elytra are shining, yellow, with pitchy punctures; there is a stripe on the sides below the humeral callus, and a broad, rather crescent-shaped mark meeting the margin in the apical half; the punctures are small, distant, neatly arranged in rows in the basal half, only a very few passing beyond the middle. The legs and underside wholly ferruginous. The antennæ are half the body's length, with the palpi and epistoma rusty red.

18. **Cymatodera marmorata.** (Tab. VII. fig. 14.)

Cymatodera marmorata, Klug, Abhand. Berl. Acad. 1842, p. 271, nec Spinola, Mon. Atlas, t. 9. f. 4.

Hab. Mexico, Catemaco (*coll. Sallé*).

The specimen figured is a single example so named in the Sallé collection, on what authority I know not. It belongs to the "*angustata*" section, which have the elytra oval, widest behind the middle. The thorax is very long, thickly and distinctly punctured. The legs are pale, with the exception of the femora, which are strongly clavate and dark in their apical half.

19. **Cymatodera undata.**

Cymatodera undata, Spin. Mon. i. p. 142 [1].
Cymatodera marmorata, Spin. t. 9. fig. 4, nec Klug.

Hab. Mexico [1].

I am unable to identify this species. Spinola describes two males and one female, possibly of different species. The figure referred to has the name changed, as is often the case in this work, in the Supplement, p. 123. *C. marmorata*, Klug, and *C. undata*, Spin., are cited as synonymous; but which specimen is figured, or how the identification was made, is left uncertain.

20. **Cymatodera vagemaculata.**

Cymatodera vagemaculata, Thoms. Mus. Scient. ii. p. 50 [1].

Hab. Mexico [1].

Another uncertain species, although the peculiarly long apical joint of the antennæ, referred to by Thomson, should make it easy to recognize it. I have seen nothing like it.

21. **Cymatodera valida.** (Tab. VII. fig. 11.)

Nigro-picea, nitida; capite magno, rugose et confluenter punctato; prothorace valde compresso, minus crebre leviter punctato; elytris ovatis, fortiter seriatim punctatis, seriebus fere integris; macula subbasali fasciisque duabus testaceis, haud bene discretis; antennis, palpis tarsisque rufis. Long. 11–13 millim. ♂ ♀.

Hab. Guatemala, Dueñas, San Gerónimo (*Champion*).

The figure is of a specimen from Dueñas.

The species of this section have the elytra more or less oval, and wider behind than at the base; some at least of them have no wings. *C. valida* is very nearly allied to *C. grossa*, the species which follows; and both are allied to *C. undulata*, Say (a species which occurs in the Southern United States, and perhaps in Mexico); but, besides the different punctuation of the thorax, the legs are darker and the femora more robust. The principal characters which separate *C. valida* from *C. grossa* are the finer punctuation of the thorax, and that the pygidial segment of the abdomen is not deeply cut out in either sex, but is truncate. The head is much wider than the thorax; the mandibles very large and powerful, with some oblong punctures on the outside of their bases. The labium and epistoma are red, and are invested with some few yellowish hairs; the punctuation of the crown is not deep, but very close, especially at the base; that of the thorax is distinct, but much less close, and not rugulose in any part, so that it is very much more smooth and shining than in *C. grossa*. The elytra are usually rather cylindrical, narrowed at each extremity. The underside of the body is dark pitchy brown, the apical margins of each abdominal segment being narrowly pale, and the ventral surface obsoletely punctured and wrinkled. The pygidial plate is oblong,

smooth, and squarely truncate at its apex; the genital of the male projects as a bifid organ, between the two points of which is a mucro, probably the penis. In specimens which I think to be the females, the apical dorsal segment is obconic truncate, the ventral one very similar.

22. **Cymatodera grossa.**

Nigro-picea, subopaca; capite sat magno, cum prothorace creberrime subrugose punctato; elytris basi indeterminate, fascia lata mediana, alteraque subapicali interrupta distincte testaceis. Long. 10–13 millim. ♂.

Hab. MEXICO, Jalapa (*Höge*).

It will not be necessary to repeat the characters pointed out in which this differs from *C. valida*; the pygidial plate is wide, and angularly cut out at the apex; the ventral corresponding plate has its sides produced and the middle irregular; the fifth ventral is arcuately emarginate, and bears a fine golden cilium in the centre of its margin. The segments are sparsely punctured, the apex more thickly.

Two specimens are all that I have seen.

23. **Cymatodera angustata.**

Cymatodera angustata, Spin. Mon. i. p. 149 [1], t. 7. fig. 1 ?
Cymatodera angustata, Leconte, New Spec. N. A. Col. p. 96 [2] ?
Cymatodera ovipennis et *pilosella,* Lec. loc. cit. [2] ?

Hab. UNITED STATES [2]; CALIFORNIA [1].—MEXICO, Capulalpam (*Sallé*).

The difficulty of determining the species of this genus is so great that I doubt the correctness of the synonymy given above, as adopted by the American describers. The single specimen which I refer to this agrees with *C. pilosella* in having the series of punctures continued to the apex; the sides of the thorax are strongly bisinuate; the anterior constriction is not so great as in a specimen of "*angustata*" in my own collection; and the elytra are very pale, the oblong punctures (and sometimes the stria between for a short distance) are fuscous. The head and thorax very finely and closely punctured, the disk with the usual fine wrinkles. It appears to be wingless.

24. **Cymatodera depauperata.**

Testacea, depressa, elytris postice paulo ampliatis; capite crebre punctato nigro, basi et ore rufo; thorace rufo lateribus nigris, subtilissime obsolete punctato; elytris pallidioribus basi obsolete striato-punctatis, punctis majoribus interspersis, fasciis et vittis indistinctis variegatis; corpore aptero. Long. 5–7½ millim.

Hab. GUATEMALA, Totonicapam, Quiche Mountains, Calderas, Volcan de Agua (*Champion*).

The head is nearly entirely black in many examples, closely subrugosely punctured; the antennæ rather long, being half or more of the length of the body, dark fuscous, with the apical joint half as long again as the one preceding, and acuminate. The thorax is not wider in front than behind, the sides strongly sinuate and almost tuber-

cular in the middle. The markings of the elytra are variable and difficult to describe: they consist of a lateral submarginal vitta, and a median and subapical fascia, which are seldom more than undulating and interrupted bands of dark dashes or spots. The legs are pale, with dark rings immediately below the knees.

This little species is similar to, but very much smaller than, *C. flexuosa*. It also appears to me to be near to *C. vagemaculata*, Thoms.; but the markings do not agree with his description, nor is there any thing remarkable in the length of the apical joint of the antennæ, although it seems to be of the form described by him.

The specimens from the first two localities, eight in number, are larger, on the average, than those from Calderas and Volcan de Agua; they are also more deeply coloured.

Subfam. *CLERIDES*.

This subfamily contains the larger number of genera in the family, distinguished by the tarsi, although 5-jointed, having the basal joint very short and underlying the base of the second joint; it is readily seen sideways, but not from above. The eyes are always cut out.

Genera of this section are found in every part of the world.

PRIOCERA.

Priocera, Kirby, Trans. Linn. Soc. xii. p. 389 (1818).

The species are all American, and nearly confined to the Tropics, only one being found in the United States.

1. **Priocera trinotata.**

Priocera trinotata, Klug, Abhand. Berl. Akad. p. 283[1], nec Spinola, Mon. ii. p. 130, t. 45. fig. 5.

Hab. Mexico, Cordova (*Sallé*); Guatemala, Mirandilla (*Champion*); Nicaragua (*Sallé*), Chontales (*Belt*, *Janson*).

This is so named in the Sallé collection; it is, however, distinct from the species figured by Spinola, and has the lateral striæ obliterated. It does not appear, however, that Spinola had seen Klug's type, but only a specimen sent him by Buquet. The present insect is somewhat like *P. spinosa*, but has the apex of the elytra entire, and three large yellow spots on each elytron—one basal, one lateral, which is square, and one behind the middle, which is usually large, transverse, and sometimes a little oblique; the apex is broadly castaneous.

2. **Priocera pustulata.**

Priocera pustulata, Spin. Mon. i. p. 118[1], t. 4. fig. 4.
Priocera flavoguttata, Chev. Rev. et Mag. de Zool. 1874, p. 32[2].

Hab. Mexico[1], Catemaca, Cordova (*Salle*, *Höge*), Yucatan[2] (*Pilate*); Guatemala, San Joaquin (*Champion*); Nicaragua, Chontales (*Belt*, *Janson*).

There is a small basal pale spot, which is sometimes wanting, as it appears to be in the figure given by Spinola. The apex is also wholly red. The name "*trinotata*" appears for this on Spinola's plate, because he considered it a variety of the species figured by him afterwards on plate 46 ; it is evidently, however, quite distinct.

3. **Priocera stictica.** (Tab. VII. fig. 17.)

Picea, plerumque dense pilosula ; elytris rufo luteoque variegatis, maculis duabus, una laterali, altera juxta suturam pone medium, approximatis, sæpe conjunctis, apice integro luteo. Long. 9–10 millim.

Hab. MEXICO, Oaxaca (*Höge*, *Salle*); GUATEMALA, Teleman, San Juan, Calderas, Cerro Zunil, Pantaleon, Panajachel (*Champion*); NICARAGUA, Chontales (*Belt*); PANAMA, Volcan de Chiriqui (*Champion*).

The figure is of a specimen from Chiriqui.

In this species the eyes approximate, the space between and above is thickly punctured, while the crown of the head is finely and transversely wrinkled; the thorax has two evident tubercles on the front of its disk; the elytra are rather coarsely punctured in rows, and the series are evident on the sides, but the punctures are fewer and larger there. Their pattern is very variegated with pitchy and red-brown; and the basal, lateral, and postmedian spots are whitish yellow; the two latter closer together than in *P. miersana* or *P. hypocrita*, and often joined, forming a hook; the apex is clear yellow. A variety (if it does, indeed, belong to this species), the one taken at Oaxaca by Sallé, has the elytra of a uniform brown pitchy colour, excepting the apex and the pale spots, the postmedian one being more linear and oblique, and rather more remote from the lateral one, than in typical *stictica*; this is more like *P. hypocrita*, Chev., but in other points it more resembles the present species.

4. **Priocera clavipes.**

Picea, antennis, pedibus basi elytrorumque apice dilutioribus; his piceo rufoque variegatis, maculis duabus parvis, una laterali, altera post medium, flavis; elytris apice integris, femoribus fortiter clavatis. Long. 6–6½ millm.

Hab. GUATEMALA, Capetillo, Chacoj, San Juan, Senahu, Zapote (*Champion*); PANAMA, Volcan de Chiriqui (*Champion*).

This differs from *P. stictica* not only in its much smaller size, but in its being frequently of a much paler colour, which extends to the thorax. The elytra have always a dark but interrupted fascia in the middle, in which lies the lateral pale spot, and bounded behind by the postmedian spot, and a narrow arcuate fascia to represent the termination of the dark portion of the elytra before the pale apex. These markings are very evident in a little series from Senahu. The specimens from the other localities are mostly single ones, and are very like small *P. stictica*; but will, I think, prove to be distinct. The femora are very sharply clavate.

COLYPHUS.

Colyphus, Spinola, Mon. i. p. 133.
Derestenus, Chevr. Mag. Zool. 1843, p. 13.

Distinguished from the allied genera which follow by having the antennæ serrate, without any distinct club. Certain genera seem very plastic and to lend themselves readily to mimicry; this is the case here, rendering the species hard to discriminate, from the excessive variability of one or two of them. It will be noticed below that the species named and figured by Spinola probably belong to one or two types. I have not yet seen any from a more southern country than Colombia.

Section A. *Antennæ serrate, the two subapical joints not wider than those preceding them.*

1. **Colyphus ventralis.** (Tab. VII. fig. 18.)

Ater, breviter sat dense pubescens, capite rufo, occipite nigro-lineato; prothoracis lateribus rufis, antice flavis; femoribus apice, segmentis ventralibus duobus penultimis totis, secundo et tertio ad marginem tantum rufis. Long. 9–11 millim.

Hab. MEXICO, Jalapa (*Höge*); GUATEMALA, Dueñas, San Gerónimo (*Champion*).

Var. Elytrorum sutura margineque laterali pallidis.

Hab. MEXICO, Oaxaca (*Höge*).

The puncturing of the whole upper surface, but especially of the elytra, is remarkably close and intricate in the species of this genus; and they are wholly devoid of the shortened and deeply-impressed striæ so usual in the Cleridæ; this, together with the colour, gives this insect a singularly close resemblance to some Lampyridæ, which the two or three pale segments beneath heightens. The variety from Oaxaca equally resembles those varieties of species of *Photinus* in which the margins are pale.

2. **Colyphus quadrilineatus.** (Tab. VII. figg. 20, 21.)

Derestenus quadrilineatus, Chevr. Mag. Zool. 1843, p. 14, t. 108[1]; Lacordaire, Gen. Atlas, t. 46. fig. 2[2].
Derestenus similis, Thoms. Mus. Scient. p. 57[3] (sec. Sallé).
Derestenus orthopleuridus, Thoms. loc. cit. (Sallé coll. partim).

Hab. MEXICO[1 2 3], Cosamaloapam, Tuxtla, Playa Vicente, Vera Cruz (*Sallé*); Cerro de Plumas, Jalapa (*Höge*); GUATEMALA, Chacoj, Teleman (*Champion*).

The figure 20 in our Plate is taken from a specimen from Vera Cruz; and fig. 21 is a variety with the lateral margins concolorus, and very faint vittæ near the suture, standing under the name *orthopleuridus*, Thoms., in the Sallé collection.

Allied to the last in the slightly expanded elytra; the fourth and fifth ventral plates and the margin of one or two preceding are pale yellow. The femora are annulated with dusky.

3. **Colyphus telephoroides.**

Ater, parum nitidus ; capite flavo, occipite et infra oculos nigro ; prothoracis lateribus angustius rufis. Long. 6–8 millim. ♂.

Hab. Guatemala, Capetillo, San Gerónimo, Sinanja valley (*Champion*).

In form and sculpture very nearly allied to *C. ventralis*; but the abdomen is wholly black, and the species is smaller. The specimen from San Gerónimo varies slightly in having the basal half of the lateral margin narrowly pale.

4. **Colyphus nigrifrons.**

Derestenus nigrifrons, Chevr. Rev. et Mag. Zool. 1874, p. 38[1].
Derestenus orthopleuridus, Thomson (Sallé coll. ex parte).

Hab. Mexico, Juquila, Cordova, Panistlahuca, Oaxaca (*Sallé*).

The head and thorax are variable: in some specimens from Panistlahuca the former is entirely yellow and the thorax unspotted ; in other specimens the thorax has a central vitta ; in the type and specimens from various localities the thorax has a single spot on the front margin. The very evenly serrate antennæ and yellow femora are good characters. The elytra are rather parallel, never vittate, but rarely with a shoulder-stripe ; the abdomen is black.

5. **Colyphus mutabilis.** (Tab. VII. fig. 23, & Tab. VIII. fig. 1.)

Derestenus mutabilis, Chevr. Rev. et Mag. Zool. 1874, p. 38[1].
Colyphus flammeus, Gorham, Trans. Ent. Soc. Lond. 1878, p. 162[2].

Hab. Mexico[1 2], Juquila (*Boucard, coll. Sallé*), Playa Vicente (*Höge*).

This differs in colour from *C. nigrifrons*; but it is variable; the typical specimens have the elytra yellow, with the apex and a scutellar spot black, and the disk of the thorax black. The femora are black.

6. **Colyphus lateralis.**

Derestenus lateralis, Chevr. loc. cit. p. 38[1].
Colyphus marginatus, Gorham, loc. cit. p. 162[2].

Hab. Mexico[1 2], Juquila (*Boucard, coll. Sallé*); Panistlahuca (*Sallé*).

The specimen from Panistlahuca is doubtfully assigned to this species; it has the breast yellow, as well as the legs, excepting the tibiæ and tarsi; and the submarginal stripe is rather further from the margin than in the two typical examples described by M. Chevrolat and myself.

7. **Colyphus floralis.** (Tab. VII. fig. 25.)

Niger, ore, antennis, prothorace (basi excepta), pectore pedibusque rufis ; elytris flavo marginatis, vittaque angusta cum margine juxta apicem conjuncta flava. Long. 6 millim.

Hab. Panama, Volcan de Chiriqui (*Champion*).

Head black, the front yellow; antennæ not much serrate, but without any club, clear red: two impressions close together between the eyes. Thorax short, the sides much rounded between the constricted lines. Legs entirely red. The elytra have the margin yellow, and a vitta, which, commencing in the centre of the base, runs rather close to the suture, and then turns outward to join the pale margin, also clear yellow. The sharpness of these markings gives this species a very distinct appearance. The abdomen is black, with the posterior margins of the segments narrowly whitish.

A single specimen is all that I have yet seen.

Section B. *Antennæ with the three terminal joints forming a lax, indistinct club.*

8. **Colyphus distinctus.** (Tab. VII. fig. 19.)

Derestenus distinctus, Chev. Rev. et Mag. Zool. 1874, p. 38[1].

Hab. Mexico, Yucatan[1], Cordova, Playa Vicente (*Sallé*); Cerro de Plumas (*Höge*); Guatemala, Senahu, Zapote (*Champion*); Panama, Volcan de Chiriqui (*Champion*).

More parallel than *C. quadrilineatus*; the pale vittæ equidistant from the suture and margin; thoracic vitta usually entire, wide at the base; femora pale; knees and tibiæ dark, posterior pair sometimes pale; abdomen pale.

9. **Colyphus vittipennis.**

Derestenus vittipennis, Chev. loc. cit. p. 39[1].

Hab. Mexico[1], Cordova, Tuxtla (*Sallé*), Cerro de Plumas (*Höge*).

Differs from *C. distinctus* by the black abdomen, a single spot on the front margin of the thorax, and by the narrower form.

10. **Colyphus signaticollis.** (Tab. VII. fig. 22.)

Colyphus signaticollis, Spin. Mon. i. p. 135[1], t. 5. fig. 5.
Colyphus cinctipennis, Spin. loc. cit. p. 136[2], t. 5. fig. 6.

Hab. California[1 2]; Mexico, Cerro de Plumas, Oaxaca (*Höge*); Guatemala, Capetillo, Zapote, San Gerónimo, Teleman, Purula (*Champion*); Panama, Volcan de Chiriqui (*Champion*).

The species which I believe is to be referred to this name is very variable, but is in general to be recognized by its rather long elytra, which are thickly and confluently punctate, and which, varying from nearly entirely ferruginous red to steel-blue, have nearly always more or less of a bluish tint. The thorax is sometimes yellow, with one frontal spot; sometimes the disk is black. The legs are generally testaceous red, with the knees and tibiæ more or less black. The underside is also variable, being quite red in paler examples, or with a black abdomen in others. The figure is of an example from the Volcan de Chiriqui, in which the elytra are of a deep blue, and the legs are black.

The specimen from Oaxaca agrees very closely with the figure in Spinola, tab. 5. fig. 5, while two from Cerro de Plumas seem referable to fig. 6 on the same plate.

11. **Colyphus limbatus.**

Colyphus limbatus, Gorham, Trans. Ent. Soc. Lond. 1878, p. 161 [1].

Hab. Mexico, Juquila (*Boucard, coll. Sallé*).—Venezuela [1] (*Thieme, coll. Oberthür*).

Scarcely separable from the preceding species, perhaps. In the type and in the specimens (which, I think, are identical with it) from Mexico the elytra are very narrowly margined with yellow *to the apex*, and the legs are black.

12. **Colyphus criocerides.** (Tab. VIII. fig. 2.)

Ferrugineus, prothorace macula antica, elytris macula scutellari, alteraque in medio quadrata, tibiis, tarsis abdomineque nigris, antennis nigris; clava ferruginea, pectore infuscato. Long. 7 millim.

Hab. Mexico, Cerro de Plumas (*Höge*).

Agreeing closely in size and form with *C. signaticollis*, and possibly only a remarkable variety of that species, but so unlike any of the other varieties as to suggest its really being distinct. The head yellow, with only the mouth a little infuscate. The thorax and elytra of a bright rusty yellow, with the black marking more distinct than usual. The antennæ are distinctly clubbed, the club yellow. The specimen figured is the only one I have seen.

13. **Colyphus orthopleuridus.**

Derestenus orthopleuridus, Thoms. Mus. Scient. p. 57 [1].

Hab. Mexico [1], Cordova, Juquila, Orizaba (*Sallé*).

I am at a loss to point out characters by which this can be separated from *C. signaticollis*. There are four specimens in the Sallé collection: the head varies; the thorax has the usual frontal spot; the elytra are rather long, immaculate; the legs pale, with dark tibiæ and tarsi. It might be confused with *C. quadrilineatus*, but that the antennæ are not serrate and the elytra are subparallel.

14. **Colyphus bicolor.**

Sallea bicolor, Chevr. Rev. et Mag. Zool. 1874, p. 36 [1].

Hab. Mexico, Vera Cruz [1] (*Sallé*); Oaxaca (*Höge*).

This insect cannot be retained in the genus *Sallea*, of which *S. necrobioides* is the type; for the labial palpi alone are hatchet-shaped. It comes in very well here. The antennæ are scarcely clubbed, but are not serrate.

15. **Colyphus collaris.**

Derestenus collaris, Chevr. Mémoire, 1876, p. 12 [1].

Hab. Mexico [1] (*Haag Rutenberg, coll. Chevr.*).

Unseen by me; and I cannot identify it by the description.

PHONIUS.

Phonius, Chevrolat, Mag. Zool. 1843, p. 11; Mémoire, 1876, p. 5.

Apparently only distinguished from *Colyphus* by its more robust form and distinctly clubbed antennæ. The only species yet described is—

1. **Phonius sanguinipennis.** (Tab. VII. fig. 24.)

Phonius sanguinipennis, Chev. loc. cit. p. 12 [1], t. 107.

Hab. Mexico, Chalchicomula [1] (*Sallé*).

The specimen figured is a single one in the Sallé collection from the locality quoted, which is, I think, the place, between Vera Cruz and the city of Mexico, where the type specimen was originally captured. It only differs from it in having a small sub-scutellar black spot.

PŒCILOCHROA.

Pœcilochroa, Chevrolat, Mémoire, 1876, p. 5; Gorham, Cistula Ent. 1876, p. 73.

The typical species have the antennæ clubbed, and have a short convex thorax and cylindrical body, singularly like *Dasytes*. One species (*Clerus thoracicus*, Oliv.) is found as far north as Canada.

1. **Pœcilochroa cyanipennis.**

Cleronomus cyanipennis, Klug, Mon. p. 307 [1].
Cleronomus dasytoides, White, Cat. Cleridæ, p. 50 [2].

Hab. N. America, California [1].—Mexico [2], Puebla (*Sallé*), Guanajuato (*Dugès, coll. Sallé*), San Luis Potosi (*Dr. Palmer*).

The smaller specimens, which also have the elytra and (in one example) the thorax dark blue, are *C. cyanipennis*, Klug. Dr. Palmer took a series which all have green elytra; and I have specimens from other parts of Mexico similarly coloured, and one equal to them in size, with the thorax blue.

SYSTENODERES.

Systenoderes, Spinola, Mon. i. p. 130.

The single species of this genus is a smoother insect, and more convex and widened behind than any of the foregoing. It is only found in Mexico.

1. **Systenoderes amœnus.**

Systenoderes amœnus, Spin. Mon. i. p. 131 [1], t. 8. figg. 1, 2.

Hab. Mexico [1], Cordova, Toxpam (*Sallé*).

Apparently rare, but perhaps overlooked from its resemblance to some of the common Galerucidæ.

AULICUS.

Aulicus, Spinola, Rev. Zool. 1841, p. 74; Mon. i. p. 328.

This genus is here retained for the American species, the Australian insects usually referred to it being considered distinct, as I have already suggested (Cistula Ent. 1876, p. 84), and as, indeed, Spinola anticipated would have to be done. The two genera have, in fact, no particular resemblance. The typical species is not in any collection I have examined; it was in that of Dupont.

1. **Aulicus nero.**

Aulicus Nero, Spin. Mon. i. p. 330[1], t. 27. fig. 5.

Hab. Mexico[1].

I have not seen this species; but it is evidently nearly allied to the following one.

2. **Aulicus monticola.** (Tab. VIII. fig. 18.)

Sallea monticola, Dugès (sec. Sallé coll.).

Niger; capite rufo, antennis, palpis et mandibulis nigris, supra rugose punctato; prothorace parcius fortiter punctato, griseo-piloso, rufo, margine antico et vitta mediana lata nigris; elytris chalybeis, humeris fasciaque infra medium ad suturam interrupta et margine ante fasciam rubricatis; abdomine ante apicem rufo. Long. 8–13 millim.

Hab. Mexico, Guanajuato (*Dugès, coll. Sallé*), Tupatero (*Sallé*).

Spinola has remarked on the resemblance of *A. nero* to *Serriger reichei*; and a specimen of the present species which I obtained from Mr. Waterhouse's collection bore that name. It has a good deal the appearance of *Trichodes viridifasciatus*.

Both pairs of palpi are terminated by a broadly triangular joint. The antennæ have the joints preceding the club simple. The eyes are finely faceted. The tarsi with the basal joint not distinct from above; the 2nd, 3rd, and 4th with well-developed lamellæ; the claws simple.

3. **Aulicus coffini.**

Serriger Coffini, White, Cat. Cleridæ, p. 53[1].

Sallea Coffini, Chevr. Rev. et Mag. Zool. 1874, p. 36; Gorham, Cist. Ent. 1876, p. 72.

Hab. Mexico[1] (*Coll. Gorham ex Saunders*), Puebla (*Sallé*).

Neither this nor *A. monticola* have any affinity or resemblance to *Sallea necrobioides*, Chevr., which has only the labial palpi with a hatchet-shaped terminal joint.

Two specimens are in the Sallé collection, and two in my own. It is also in M. Chevrolat's and other collections, but is rare.

SERRIGER.

Serriger, Spinola, Mon. i. p. 170 (1844); Lac. Genera Col. iv. p. 441.

A genus about which there is room for a good deal of doubt. Lacordaire had not seen the unique type, and makes the remark that the figure in no way conforms with the description. I do not, however, see that there is any important discrepancy.

I have already shown that *S. coffini*, White, is not congeneric with this type. Lacordaire mentions another species which he had seen, but without naming or describing it.

1. **Serriger reichei.**

Serriger Reichei, Spin. loc. cit. p. 171[1], t. 12. fig. 3.

Hab. Mexico [1].

THANASIMUS.

Thanasimus, Latreille, Gen. Crust. et Ins. i. p. 270; Lac. Gen. Col. iv. pp. 445, 446 note 2; Gorh. Cist. Ent. 1876, p. 73.

The typical species of *Thanasimus* (*i. e.* species of the *T. formicarius* type) are confined to the northern hemisphere; but the tropics, and even temperate parts of the southern latitudes, produce species which at present cannot well be separated. The genus, however, is not numerous in species. In the Munich Catalogue forty-four are recorded; but at least ten of these have to be eliminated, the Chilian species belonging to *Epiclines* or *Dereutes*, Chevr.

1. **Thanasimus dubius.**

Clerus dubius, Fabr. Syst. El. i. p. 280[1].
Thanasimus ruficeps, Spin. Mon. i. p. 189[2], t. 14. fig. 2.
Thanasimus dubius, Klug, Mon. p. 292; Lec. Syn. p. 24.

Hab. North America [1 2], United States.—Mexico (*coll. Gorham*).

A specimen in my own collection is all I have seen of this insect from Central America; there is, however, no improbability of its occurring there.

2. **Thanasimus nigriventris.**

Thanasimus nigriventris, Leconte, Proc. Ac. Phil. 1861, p. 351[1].

Hab. North America, California [1], Vancouver's Island (*coll. Gorham*).—Mexico, Yolotepec (*Sallé*); Guatemala, San Gerónimo (*Champion*).

Mr. Champion met with eight specimens of this insect at San Gerónimo. It may be distinguished from *T. nubilus*, Klug, to which it is very nearly allied, by the abdomen being black, and by the elytra not being serially punctured at their bases. When in fine condition the whole of the apex is covered with grey pubescence; but most of the specimens I have seen are so worn as to show only two indistinct wavy lines of grey hairs across the elytra.

3. Thanasimus? subviolaceus.

Niger, nitidus; elytris subviolaceis, tuberculato-asperis, fascia obliqua ante medium ex maculis duabus albis formata, alteraque ante apicem indistincta e pube grisea consistente; prothorace modice elongato, antice et postice attenuato et constricto. Long. 9 millim.

Hab. Costa Rica, Volcan de Irazu, Rio Sucio (*Rogers*).

A species not very satisfactorily placed here, yet better so than in *Clerus*. It is rather depressed, shining, black, with a faint brassy tint upon the underside. The head is sparingly punctured, the thorax scarcely with distinct punctures, but a little roughened, and with a flat depression extending from the middle of the anterior constriction. The elytra have a tubercular elevation on each side of the scutellum; the small rough points are pretty evenly distributed over the whole surface, and are interspersed with confluent obsolete punctures, which are noticeable on the white spots also. The antennæ are of moderate length, and have a three-jointed lax club. Only two examples of this curious species have come under my notice.

CLERUS.

Clerus (Geoffroy), Fabricius, Genera Ins. Mant. p. 230 (1777); Mantissa, Ins. p. 125; Spinola, Mon. i. p. 234; Lacordaire, Genera Col. iv. p. 446; Gorham, Cist. Ent. 1876, p. 76.

Fabricius was the first to use this name with a generic signification. I take the first of his species, which has not been employed as a type for any other genus, viz. *C. ichneumoneus*, for the type of *Clerus*. The only other course is to abandon the term *Trichodes*, and rename the present genus. The genus is peculiar to America, and almost confined to the Tropics; species from the United States are not typical, and ought, perhaps, to be assigned to *Thanasimus*, to which they are very nearly allied. The species are, however, abundant, both north and south of the Isthmus of Panama.

I have not at present found it convenient to divide the genus into sections; but the species are grouped, as far as possible, according to their natural affinities.

1. Clerus badeni.

Clerus badeni, Gorham, Cist. Ent. 1876, p. 80[1].

Hab. Mexico[1], Minas Viejas (*Dr. Palmer*), Cerro de Plumas, Paso del Macho (*Höge*), Tehuantepec (*Sumichrast*); Vera Cruz (*Moufler*?).

Allied to *C. 4-signatus*, Say, rather larger and more depressed, the subapical white band not so distinct; allied also to *C. mexicanus*, but less hairy, and the basal tubercle is wanting. There are usually two minute white spots of hair on each side of the scutellum. The original specimen was sent me by Dr. Baden. Eight specimens have been sent from the localities above mentioned; and all agree with the type, varying very little *inter se*.

2. **Clerus vulpinus.**

Clerus vulpinus, Gorham, Cist. Ent. p. 81 [1].
Clerus boucardi, Chevr. Mémoire, p. 13 [2].

Hab. MEXICO [1 2], Puebla (*Sallé*), Cerro de Plumas (*Höge*); GUATEMALA, San Gerónimo (*Champion*).

My own description was published before M. A. Chevrolat's, as he states in the note on the titlepage [2] that his Memoir, although deposited with the French Entomological Society in 1875, was not published before the *end* of 1876.

This species, although very close to *C. mexicanus*, and although I have joined it with that species (Trans. Ent. Soc. Lond. 1878, p. 164), is, I now think, distinct. It differs in having the abdomen black, in the thorax being entirely covered with tawny yellow hair, with the apex of the elytra of the same colour; the central fascia is often entire, but in one specimen from San Gerónimo is narrowly interrupted at the suture. The type specimen I owe to Dr. Baden's liberality. I have one from the collection of W. W. Saunders; and there are two in Sallé's collection. Mr. Champion met with one at San Gerónimo.

3. **Clerus assimilis.**

Clerus assimilis, Chevr. Mag. Zool. 1843, p. 17 [1].
Clerus vulpinus, var.?, Gorh. loc. cit. p. 81 [2].

Hab. MEXICO [1 2], Cordova (*Sallé*); GUATEMALA, San Gerónimo, Senahu, Cahabon; PANAMA, Bugaba (*Champion*).

This is so very close to the preceding species that I am still doubtful if they ought to be separated. The smaller size and smaller thorax, together with the interrupted fascia, seem constant.

The thorax in the Bugaba specimens recently sent has a black band across the middle. The apex is nearly always obliquely pubescent, the black fascia preceding it being wider on the margin, while in *C. vulpinus* the fasciæ are straight.

4. **Clerus mexicanus.**

Clerus mexicanus, Castel. Silb. Rev. iv. p. 44 [1]; Klug, Abhand. Berl. Akad. p. 299 [1]; Spin. Mon. i. p. 248, t. 27. f. 2.
Clerus silbermanni, Chevr. Mag. Zool. 1843, p. 21 [2].
Clerus semiochraceus, Chevr. Rev. et Mag. Zool. 1874, p. 41 [3].

Hab. MEXICO [1 2 3], Paso del Macho, Cerro de Plumas (*Höge*), Vera Cruz, Orizaba (*Sallé*); GUATEMALA, San Gerónimo; NICARAGUA, Chontales (*Belt*); PANAMA, Volcan de Chiriqui, Bugaba (*Champion*).

5. **Clerus luscus.**

Clerus luscus, Klug, Abhandl. Berl. Akad. p. 299 [1].

Hab. Mexico [1], Parada (*Sallé*).

One of the largest species in the genus.

6. **Clerus sphegeus.**

Clerus sphegeus, Fabr. Mant. Ins. i. p. 125 [1]; Klug, loc. cit. p. 298; Spin. Mon. i. p. 270, t. 27. f. 4.
Clerus sobrius, Walker, Nat. Vancouv. 1866, ii. p. 326 [2].
Clerus arachnodes, Klug, loc. cit. p. 299 [3]; Spin. loc. cit. ii. p. 137, t. 3. f. 2.

Hab. North America [1], Vancouver's Island [2].—Mexico [3], Chalchicomula (*Sallé*), Guanajuato (*Dugès, coll. Sallé*).

I have no hesitation in uniting the species cited above. A specimen of *C. sphegeus* from Vancouver's Island, in my own collection, only differs from Mexican specimens of *C. arachnodes* in being rather larger and in having the legs black; in *C. arachnodes* they are reddish at the base. It appears a rare species: there are three specimens in the Sallé collection from San Andres (Chalchicomula), and one from Guanajuato, which is quite denuded, or lacks the pale fascia of ashy hairs.

7. **Clerus viduus.**

Clerus viduus, Klug, loc. cit. p. 297 [1].
Clerus erythrogaster, Spin. loc. cit. i. p. 272, t. 27. f. 3.
Clerus rufiventris, Chevr. Rev. et Mag. Zool. 1843, p. 11.
Clerus cuprescens, Gorh. Cist. Ent. 1876, p. 81 [2].

Hab. North America [1].—Mexico [2], Oaxaca, Orizaba (*Sallé*).

In fine examples the elytra are clothed with a fine ashy pubescence, with two denuded spots on each; but in rubbed ones these quite disappear. The legs, metasternum, and abdomen are red, the tarsi darker. Rare.

8. **Clerus bombycinus.**

Clerus bombycinus, Chevr. Col. Mex. Cent. i. fasc. 1 (1833) [1].
Clerus æneicollis, Spin. loc. cit. i. p. 254, t. 24. f. 1.

Hab. Mexico [1], Cuernavaca, Parada, Puebla, Yolos (*Sallé*); Guanajuato (*Dugès, coll. Sallé*), Jalapa, Cerro de Plumas (*Höge*); Nicaragua, Chontales (*Belt*).

9. **Clerus nodulifer.**

Clerus mutabilis, Chevr. Rev. et Mag. Zool. 1874, p. 40.
Clerus gibbifer, Chevr. MS. coll. Sallé.
Clerus nigromaculatus, Chevr., et *distinctus*, Chevr. (Sallé coll.).

Hab. Mexico, Cordova (*Sallé*); Guatemala, Cerro Zunil, Panima, Teleman, Miran-

dilla, San Gerónimo; NICARAGUA, Chontales (*Belt*); PANAMA, Bugaba, Volcan de Chiriqui (*Champion*).

Chevrolat seems to have intended to change the name of this species, because *mutabilis* had been already used by Boheman for a South-African insect. I do not think the term *gibbifer* is expressive of the two raised nodules at the base of the elytra, so characteristic of many Mexican species, and which are particularly prominent here. A large number of specimens were taken at Cerro Zunil by Champion, and many at Chontales by Belt. The latter vary very much in size, and also in the darkness of the thorax and base of the elytra, which are from pitchy brown to light red.

10. **Clerus quadrinodosus.** (Tab. VIII. figg. 4, 19.)

Clerus quadrinodosus, Chevr. loc. cit. p. 42[1].

Hab. MEXICO, Cordova[1]; GUATEMALA, Aceituno; NICARAGUA, Chontales (*Belt*); PANAMA, Volcan de Chiriqui (*Champion*).

The figure 19 is of a specimen from Cordova in Sallé's collection; No. 4 is of a single specimen from the Volcan de Chiriqui, and represents what I believe is a variety of the same species. The specimens in Sallé's collection are quasi-types, one of them being labelled by M. Chevrolat; but it would be hard to identify it from his description. The head and front of the thorax are black. The elytra have the humerus a little raised, and a more prominent tubercle near the scutellum; the white short basal striga (hereafter called the "basal striga") is slightly raised, and runs into the tubercle, which is bordered with black below, or is blackish itself. There is a black spot on the margin before the white fascia. The black band before the apex is usually united at the suture, forming a fascia, but is sometimes (as in the variety from Chiriqui) a suborbiculate spot.

11. **Clerus x-album.** (Tab. VIII. fig. 22.)

Nigro-fuscus, subopacus; elytris striga basali parva maculaque infra hanc conjunctim litteram X formantibus, fascia mediana subhamata ad suturam paululum recurvata et interrupta, alteraque ante apicem obliqua recta albidis, pedibus rufo-piceis. Long. $5\frac{1}{2}$–$6\frac{1}{2}$ millim.

Hab. GUATEMALA, Zapote, El Reposo (*Champion*).

Var. Prothorace (margine antico excepto) rufo-piceo; elytris basi rufis, striga basali alba minuta, sed maculis prope scutellum inconspicuis.

Hab. BRITISH HONDURAS, Rio Sarstoon (*Blancaneaux*); NICARAGUA, Chontales (*Janson*); PANAMA, Bugaba, David (*Champion*).

When a sufficient number of this species are placed together, it appears a very distinct one; but I have found others which are very difficult to separate from it. The characters on which I rely are the rather robust form and slightly opaque surface,

the thorax being punctured though very closely, the form of the central fascia, which is indented on its basal side, where it narrows to the suture, the projecting angle touching, or nearly reaching, the lower subscutellar spot, and the presence of an actual white subapical fascia (not merely a fascia of pubescence); the elytra are substriate at the base, and at the humerus the punctuation is distinct though close and confluent. I think these points will distinguish this, with the aid of the figure. The latter is that of a Zapote specimen. The base of the elytra is not tuberculate.

12. **Clerus cautus.**

Nigro-piceus, nitidus; elytris striga basali minuta eburnea elevata, maculaque hamata juxta scutellum subflava, fascia mediana, ad suturam recurvata, albida, apice cinerea pubescente; pedibus et antennis piceis obscuris. Long. 5–7 millim.

Hab. GUATEMALA, San Juan, Panzos, Teleman, Chiacam, Senahu (*Champion*).

The elytra are longer than in *C. x-album*, and the whole insect is more shining; the elytra have a faintly raised tubercle, in which the basal striga terminates. The pale mark which forms the bottom of the hook curves backwards towards the humerus; this character will always separate this from any of its allies yet known to me.

13. **Clerus bicarinatus.**

Niger, nitidus; prothorace antice valde constricto, elytris striga basali eburnea, valde elevata, fasciis duabus, una pone humerum incipiente ad suturam oblique provecta indistincta, altera mediana versus suturam retrorsum curvata, paulo elevata, pallidis. Tibiis, palpis antennisque basi apiceque rufis. Long. 7 millim.

Hab. NICARAGUA, Chontales (*Belt*); PANAMA, Volcan de Chiriqui (*Champion*).

Very close to *C. cautus*, yet apparently distinct. It differs in being rather more shining; the first fascia is nearly straight, oblique, not united with the basal striga, which is longer and more raised than in its allies. The second fascia is a little raised. There is no subapical one; and the apex is only narrowly and obliquely clothed with ashy pubescence. The legs are usually darker than in *C. cautus*, yet the tibiæ and trochanters are more or less distinctly red, and two specimens from Chiriqui have them entirely red. This species is allied to *C. bilobus*, Spin., a South-American species.

14. **Clerus cinereus.** (Tab. VIII. fig. 5.)

Niger; capite prothoraceque subæqualibus, opacis, pube cinerea vestitis, nigro-pilosulis; elytris subnitidis puncto basali eburneo, fascia obliqua alteraque mediana curvata concinne ornatis, apice late brevissime cinereopubescente; pedibus, antennis et palpis nigris. Long. 5–7 millim.

Hab. GUATEMALA, Las Mercedes (*Champion*); PANAMA, Volcan de Chiriqui (*Champion*).

The figure is taken from a specimen from Las Mercedes.

Head and thorax very even, the latter with scarcely any impressed transverse line in front; the base narrowed, much as in *C. zebra*, to which it is allied, but than which it is less robustly built. The *slaty* blue pubescence which clothes the apex of this

species is very characteristic. The basal striga is confined to an elongate point; the first fascia seldom unites with it (but does so in the specimen figured). The elytra are smooth, without striæ.

Only five specimens have been sent.

15. **Clerus zebra.**

Clerus zebra, Chevr. Mag. Zool. 1843, p. 23 [1].

Hab. Mexico [1], Cordova (*Sallé*); Oaxaca (*Höge*); Guatemala, Capetillo, San Gerónimo (*Champion*); Nicaragua, Chontales (*Belt*).

The basal striga is sometimes raised, as in *C. bicarinatus*; in the Mexican examples it is nearly lost in the pale subscutellar line which unites with the first oblique fascia.

16. **Clerus tuberculariis.** (Tab. VIII. fig. 20.)

Piceus, nitidus, elytrorum basi femoribusque rufis, illis tuberculo basali nigro bene elevato, apice pube grisea micante vestito.

Var. elytris totis piceis, vel capite et prothorace toto rufis, vel pedibus piceis fere nigris. Long. $4\frac{1}{2}$–5 millim.

Hab. Mexico, Cordova (*Sallé*); Guatemala, Cerro Zunil, Capetillo, Aceituno (*Champion*).

A Cerro-Zunil specimen is figured.

This little species is very distinct, belonging to a section of the genus which have the elytra a little depressed behind the scutellar region; in the present species the legs are very long, but the body rather short, very much more so than in the following species. The head and thorax are rather rough, and clothed with scanty pile of irregular length, the legs being also pilose. The basal tubercle is very conspicuous, the humerus being also a little raised. The elytra are flattened below this part, yet the suture is a little elevated, and there is an obsolete costa running from the humerus, in a sinuate manner, along the side of each elytron, as far as the commencement of the grey apical pubescence. The basal half of the elytra, with the exception of the tubercle, is usually rufous, and the apical half is always pitchy. Viewed from behind, the shining pubescence of the apex is only visible on each side; but this only depends on the way the light falls, for the whole apex is clothed with a similar hair. Several examples occurred at Cerro Zunil, a few only at Capetillo. There are three in Sallé's collection of the variety with the head and thorax red, to which variety a single specimen from Aceituno belongs.

17. **Clerus concinnus.** (Tab. VIII. fig. 12.)

Clerus concinnus, Gorh. Trans. Ent. Soc. Lond. 1878, p. 165 [1].

Hab. Guatemala, Chinautla [1] (*Salvin*), near the city, Dueñas, Capetillo, San Gerónimo (*Champion*).

Described from a single specimen, which was rather smaller than the average of the

large series which have been since collected by Mr. Champion, some of which measure 6 millimetres in length. It is an extremely narrow graceful species, and exhibits the same depression and contraction of the elytra before the apex as the preceding and following species.

A specimen from San Gerónimo is shown in the Plate.

18. **Clerus contractus.** (Tab. VIII. fig. 13.)

Cleri concinni affinis at minor. Niger, opacus ; prothorace elytris antice latiore, postice angustato ; elytris medio depressis et contractis, basi tuberculo atripiloso, medio fascia alba arcuata suturam non attingente. Long. 4 millim.

Hab. GUATEMALA, El Tumbador, Volcan de Atitlan, San Gerónimo (*Champion*).

The specimen figured is from El Tumbador.

Even smaller than the average size of *C. concinnus*, which it is allied rather closely to, but from which it differs in not having the elytra red at the base. The thorax is larger in proportion. In addition to the basal tubercle, the elytra have a raised black point above the white fascia, within which, between it and the fascia, there is a very polished shining space, which has the effect of throwing down the fascia, so as to make the elytra appear more depressed there than they are in reality. The apical portion is evenly rounded and bluish black, without cinereous hairs. This species has a singularly ant-like look, and, indeed, closely resembles an ant of the genus *Cryptocerus* from the same district. About a dozen examples have occurred.

19. **Clerus beatus.** (Tab. VIII. fig. 23.)

Niger, subnitidus, capite antice, antennarum basi, prothorace postice elytrorumque dimidio basali rufis ; elytris tuberculo nigro, fascia mediana retrorsum curvata alteraque subapicali recta albidis, apice plumbeo. Long 5 millim.

Hab. MEXICO, Playa Vicente (*Höge*) ; GUATEMALA, San Gerónimo (*Champion*).

The specimen figured is from San Gerónimo.

This elegant little species is to be recognized, among the series with a basal tubercle, by its very depressed form. The basal joint of the antenna is red. The elytra are obsoletely substriate ; the first white fascia is bordered with black towards the base. In the Mexican example only the humeral region is red. There is no other species to which this is very nearly allied : it is wider than *C. concinnus* ; nor is there any sign of a tubercle in the middle of the elytra, as in the two preceding species.

Two specimens are all I have seen.

20. **Clerus sanguinipes.**

Clerus sanguinipes, Chevr. Rev. et Mag. Zool. 1874, p. 14[1].

Hab. MEXICO[1] ; PANAMA, Volcan de Chiriqui (*Ribbé*).

A single specimen is all that I have seen.

21. **Clerus spinolæ.**

Clerus spinolæ, Lec. Proc. Ac. Phil. vi. p. 230.

Hab. Mexico (*coll. Gorham*).

This fine species is not in any of the recent collections from Mexico, nor in Sallé's; there is a specimen, however, in my own, obtained from that of W. W. Saunders.

22. **Clerus pictus.** (Tab. VIII. fig. 7.)

Niger, nitidus, elongato-ovalis; elytris obsolete crebre punctatis, substriatis, medio latioribus, singulis maculis tribus, scilicet vitta brevi basali, macula mediana laterali transversa, alteraque pone medium suturæ propiore albido-flavescentibus, apice tenuissime cinereo-pubescente. Long. 10 millim.

Hab. Guatemala, San Gerónimo (*Champion*).

A single specimen only captured.

23. **Clerus decussatus.**

Clerus decussatus, Klug, Abhandl. Ak. Berl. p. 296[1].
Clerus hopfneri (Dej.), Spin. Mon. i. p. 256[2].

Hab. Mexico[1 2] (*coll. Gorh. &c.*), Cuernavaca (*Sallé*), Guanajuato (*Dugès, coll. Sallé*).

Var. Elytris fascia prima albida prope suturam interrupta.
Clerus decussatus, Spin. Atlas, t. 25. f. 1.
Clerus ornatus (Dup.), Spin. Mon. i. p. 257, t. 25. f. 2.

Hab. Mexico, Milpas (*Forrer*), Juquila (*Boucard, coll. Sallé*), Cerro de Plumas (*Höge*).

I have no hesitation in uniting both the forms cited above as one species; and they are so placed in Sallé's collection. The fig. 1 in Spinola appears to have been taken from one of this variety, although, in the description of *C. hopfneri*, there is a note (25, p. 257) to the effect that the interruption of the fascia is too pronounced in the figure. Two of the specimens from Milpas have the elytra with the base black as well as the apical half, while one has it red as usual.

The black head and legs will always separate it from the following species.

24. **Clerus rutilus.**

Elongatus, antice angustior, ferrugineo-rufus, subopacus; elytris postice nigricantibus, fascia mediana subrecta, interrupta, ad suturam latiore, alteraque ante apicem albidis, sutura rufescente; abdomine obscuro. Long. 7–10 millim.

Hab. Mexico, Cerro de Plumas (*Höge*).

Tip of the mandibles black; head with the antennæ and palpi, thorax, breast, and one third of the base of the elytra dull brick-red. The thorax is not so wide as in *C. decussatus*; and the puncturing is more close. The elytra are closely and confluently punctured in their basal half; they commence to be black before the first fascia: the latter is not recurved at the suture as in either *C. decussatus* or *C. salvini*, but is thick-

ened both upwards and downwards; the punctures on this fascia are individually distinct. The fascia before the apex is as in *C. salvini*; the suture between the two fasciæ is usually of the same colour as the base; the fasciæ themselves are whitish or creamy yellow.

25. **Clerus salvini.**

Clerus Salvini, Gorh. Cist. Ent. 1876, p. 78 [1].

Hab. GUATEMALA [1], near the city (*Salvin, coll. Gorh.*), Dueñas, San Gerónimo, Cerro Zunil, Las Mercedes (*Champion*); COSTA RICA (*Van Patten*).

This species is abundantly distinct from *C. decussatus*. The first fascia is placed nearer the apex of the elytra, and is not so strongly recurved at the suture. The entire basal half of the elytra is red, in which respect *C. salvini* resembles *C. opifex*; but it is not shining, being coarsely yet hardly confluently punctured. Three lines are indicated on each elytron, in the interstices of the punctures. The first fascia is very narrowly bordered with black on the basal side.

I have seen a very few examples in which the thorax is reddish. A large number of this insect were found by Champion at Dueñas and San Gerónimo.

26. **Clerus opifex.** (Tab. VIII. fig. 3.)

Clerus ocellatus (Dugès, coll. Sallé).

Niger, nitidus; thorace brevi; elytris læte rubidis, macula subapicali rotundata nigra, antice per fasciam pallidam arcuatam cincta, apice cinereo-pubescente, fascia subapicali alba, brevi, haud distincta. Long. $5\frac{1}{2}$–8 millim.

Hab. MEXICO, Guanajuato (*Dugès, coll. Sallé*), Cerro de Plumas (*Höge*); GUATEMALA, San Gerónimo (*Champion*); NICARAGUA, Chontales (*Belt*).

Head and thorax densely clothed with erect pile; that on the head and front of the thorax greyish, but that on the central portion is black. Elytra shining, thickly and irregularly punctured, the punctures somewhat disposed to form rows. The first fascia is only represented by a paler arcuate band, which margins the roundish black spot, and is nearer the apex than the fascia in *C. salvini*. The apex itself is clothed rather thickly with grey depressed hairs, which hide the short pale oblique band which is still present, and is disposed in such a manner as often to make the black portion appear annulated. The specimen named *C. ocellatus* in Sallé's collection is a small one thus marked; but in others the two black marks are joined at the suture. The legs are black, densely clothed with grey hairs.

I do not adopt Dugès's name for this species, because *C. oculatus*, Spin., applies to *C. rosmarus*, Say, a somewhat similarly marked but quite distinct species. A considerable series were taken by Höge, about six by Champion at San Gerónimo, and one by Belt at Chontales.

The specimen figured is one from Cerro de Plumas.

27. **Clerus cylindricus.** (Tab. VIII. fig. 6.)

Clerus cylindricus, Gorh. Trans. Ent. Soc. 1878, p. 164 [1].

Hab. GUATEMALA, near the city (*Salvin* [1]), Capetillo, Dueñas (*Champion*).

An abnormally coloured species, the markings of which are difficult to define. The head is dark pitchy; the thorax the same, but reddish in front and sometimes on the disk. The elytra are mottled with dark and pitchy brown and whitish yellow. The suture and a spot on each side above the middle, and another subapical one, are pitchy, varying in depth.

Many specimens of this species have now been taken by Champion. It was originally described from a single one taken by Mr. Salvin, in the environs of the city of Guatemala, at 5000 feet elevation.

The specimen figured is one from Capetillo.

28. **Clerus anceps.**

Niger, nitidus; pectore rufo, prothorace quam elytra angustiore, margine antico albo; elytris basi rufis, fasciis duabus albis—una mediana leviter arcuata, altera ante apicem recta integra; elytris basi subtiliter granulosis prope scutellum leviter elevatis. Long. 9 millim.

Hab. GUATEMALA, Cerro Zunil (*Champion*).

Head and thorax very narrow, smooth, with very few hairs; antennæ black, with the basal joint reddish beneath; the front margin of the thorax is distinctly, and the hind margin very narrowly, white. The elytra are shining, but rough at the base; punctures are not present; near the suture in the middle a few grauulations are to be seen, arranged in rows. The first white fascia is bordered with black, which shades off into the red of the base; it is a little recurved and scarcely interrupted by the sutural margin. The space between it and the subapical fascia is black, with a faint violet tinge. The second fascia is nearly straight and quite entire. Legs black, with the base of the femora and trochanters white.

This species (of which I have only seen a single specimen) has a very striking likeness to *C. laportei*, but it is essentially distinct in several of its characters. The narrow thorax and its colour, and the black legs, are sufficient to prevent their being confounded. *C. laportei*, Guérin, is a Brazilian species, and, although attributed to Mexico by Spinola, was so, I believe, incorrectly. I possess Guérin's specimen, which appears to have been unique in his collection, and which is from Brazil.

29. **Clerus guatemalensis.**

Niger, nitidus; antennis articulis quatuor primis, palpis elytrorumque basi rufis; his fascia paulo post medium, sutura interrupta, sat lata, flava, apice cinereo-pubescente; prothorace quam elytra angustiore. Long. 9 millim.

Hab. GUATEMALA, Sinanja valley (*Champion*).

Head and thorax clothed with rather dense hairs, but their surface, which is black, quite visible, narrower than the elytra, very obsoletely punctured. Elytra with rather

less than a third at the base red, closely and confluently punctured, only slightly tumid on each side of the scutellum; the latter is black. A wide black fascia separates this part from the central fascia, which is of the shape of, and placed much as, the fascia in *C. mexicanus* and the allied species. The apex is clothed with grey hairs, but is black beneath them. The legs and underside are black, with the exception of the apex of the abdomen, which is red.

A single specimen is all that has been sent.

30. **Clerus recurvatus.** (Tab. VIII. fig. 17.)

Niger, nitidulus; capite prothoraceque nigro-pilosellis; elytris macula basali prope scutellum fasciaque lunata ad suturam fortiter recurvata flavis, apice cinereo-pubescente. Long. $7\frac{1}{2}$ millim.

Hab. Guatemala (*coll. Sallé*).

Rather densely pilose, very finely punctured, entirely black, except the markings on the elytra, the latter scarcely punctured; a yellow spot at the base a little raised and shining, pear-shaped, with its apex away from the base. The fascia is wide on the margin, as nearly as possible in the middle, but strongly reflexed, and not touching the suture. There is a subapical fascia of cinereous down, and the suture at the apex is downy.

This species appears to me to approach *C. lætus*, Klug, judging from his description. A single specimen is all that I have seen.

31. **Clerus lætus.**

Clerus lætus, Klug, Abhandl. Ak. Berl. 1841, p. 301 [1].

Hab. Mexico [1].

This was not recognized by Spinola; M. Chevrolat did not know it; nor have I been able positively to identify any species with it. There is, however, a specimen in Sallé's collection, No. 562, which I think may be it, resembling *C. recurvatus*, but with the marking smaller and the fascia less arcuate, not turning down the suture.

This specimen is from Tuxtla.

32. **Clerus vulneratus.**

Clerus vulneratus, Klug, loc. cit. p. 302 [1].

Hab. Mexico [1], Puebla (*Sallé*), Parada (*Boucard, coll. Sallé*).

The specimens of this from Puebla are named "*vulneratus*, Klug," in Sallé's collection, while those from Parada are labelled "*signatus*, Klug." Both are referable to one species, and agree very nearly with the description of the former; I refer a different species to the latter. The Puebla specimens have the ground-colour of the elytra bluish, the Parada ones coppery. The blood-red fascia is very broad on the margin,

being carried backwards there towards the apex, and equal in breadth to half the length of the elytra.

33. **Clerus signatus.**

Clerus signatus, Klug, Abhandl. Ak. Berl. 1841, p. 301 [1].

Clerus bisignatus (Dej.), Spin. Mon. i. p. 272, t. 23. fig. 5 [2].

Hab. Mexico [1 2], Capulalpam(*Sallé*), Parada (*Boucard, coll. Sallé*), Jalapa (*Höge*).

Quite distinct from *C. vulneratus*. The central interrupted fascia is pale yellow, much narrower on the margin, widened to about equal width near the suture, but constricted in the middle. The elytra are greenish or faintly brassy.

I have one specimen of this from Dr. Baden, which I believe is from Mexico. It agrees very well with Spinola's figure and with Klug's description.

34. **Clerus högei.**

Niger, nitidus; capite crebre subtiliter punctato; prothorace elytrorum fere latitudine, subgloboso; elytris basi fortiter rugose punctatis, substrigosis, fascia lata ad suturam interrupta ante medium sita, sanguinea. Long. 8 millim.

Hab. Mexico, Cerro de Plumas (*Höge*).

The blood-red lateral spot or fascia in this species is quite differently placed, and of a different form, from that in *C. vulneratus* : it commences just below the shoulder ; and its hind margin is in the middle of the margin of the elytra, and is carried straight inwards; the front margin is rounded. The rugosity of the basal two thirds of the elytra is also a good distinguishing character.

Although there is only one specimen of this insect, I have no doubt it will be easily recognized.

35. **Clerus venator.**

Clerus venator, Chevr. Rev. et Mag. Zool. 1843, p. 18.

Hab. Mexico, Cordova (*Sallé*).

A doubtful species. Certainly the exponent of it in Sallé's collection is a distinct species from any I have seen; but it does not belong to the *C. mexicanus* group, not having any basal tubercles. It agrees fairly well with the figure in Spinola, t. 23. fig. 2, the pale apex, as there shown, representing pubescence alone.

The synonymy given by Chevrolat himself (Rev. et Mag. de Zool. 1874, p. 10) needs corroboration.

36. **Clerus æsopius.** (Tab. VIII. fig. 8.)

Niger, vix nitidus, sublævis, depressiusculus; elytris fascia lata ad suturam anguste interrupta, ad marginem angustata, lineaque parva nec suturam nec marginem attingente flavis. Long. 8 millim.

Hab. NICARAGUA, Chontales (*Janson*).

Deep black, short; thorax nearly as broad as the elytra at the base, with a scanty pile; the constricted basal part small. Elytra with rather prominent shoulders; a large, yellow, somewhat triangular spot nearer the base than the apex, nearly reaching the suture, and with one of its angles on the margin, but truncated there; and a very narrow oblique line before the apex yellow.

A single specimen, which has lost the abdomen, is all I have seen. It is very distinct.

37. **Clerus insidiosus.**

Niger, sericeus, pube cinerea fulvaque varius; capite nigro, vix pubescente; prothorace elytrorum latitudine, cinereo-sericante, disco depresso; elytris tuberculo basali nigro-piloso, humeris subrugulosis, fascia mediana alba versus apicem recta, versus basin in medio elytri angulatim ampliata, apice indeterminate albo-pubescente; pedibus (præsertim posticis) longis. Long. 9–10 millim.

Hab. PANAMA, Bugaba, David (*Champion*).

This very singular insect resembles some of the varieties of *C. mexicanus*, and has, like it, a raised tubercle at the base of each elytron; but the length of the legs, especially of the hinder femora and tibiæ, remove it from any species of this genus, and perhaps indicate a generic difference, the hind femora being long enough to reach or pass the apex of the elytra. But the claws, antennæ, palpi, and other characters are as in typical *Cleri*.

The antennæ have the basal joint and the second joint partly reddish; the palpi are black. The thorax is narrower behind and more produced than in *C. mexicanus* or its allies, and hence appears more detached from the rest of the body; and this, together with the long legs, gives this species the appearance of the Australian genus *Olesterus*. The central fascia is white, bone-coloured in the middle, and thickly punctured and eburated at its edges; it is followed towards the apex by a band, nearly denuded, of the greenish-black colour of the base of the elytra; the apex is clothed with bone-white hairs.

Two specimens were taken at Bugaba, and one at David, by Champion.

38. **Clerus cuneatus.** (Tab. VIII. fig. 16.)

Niger, parum nitidus, pube brevi plumbea vestitis, nigro-pilosellus, omnino crebre subtiliter punctatus; elytris fascia valde angulata alteraque recta spatium deltoideum nigrum cingentibus. Long. 8–10 millim.

Hab. MEXICO (*coll. Gorham*), Peras (*Sallé*).

Black, nearly covered with a very fine, leaden, silky pubescence. The disk of the

thorax is denuded, the suture and base of the elytra partly so. Basal and second joints of the antennæ red beneath; palpi pitchy, black at the tips. The first fascia singularly angulated, like the letter Λ with its apex towards the base of each wing-case; the transverse fascia does not quite touch the suture or margin, so that the enclosed black triangle is connected with the apical part, which is leaden.

I possess a specimen from the collection of my late friend W. W. Saunders, Esq.; and there are two in Sallé's collection from Peras.

39. **Clerus nigrocinctus.**

Clerus nigrocinctus, Klug, loc. cit. p. 294[1].
Clerus bicinctus, Spin. Mon. i. p. 260, t. 24. fig. 4, nec Klug.

Hab. Mexico[1], Puebla (*Sallé*), Huanchinango (*Truqui*).

Var.? pectore pedibusque nigris.
Clerus bicinctus, Klug, Abhand. Ak. Berl. 1841, p. 297.
Clerus errans, Gorham, Cist. Ent. 1876, p. 80.

The Puebla specimens, two in number, have the breast a little infuscate, but the legs red, except the tarsi. A single specimen from Huanchinango has the breast red; it is only, however, the size of the other specimens. My specimen from Dr. Baden is the only one I have seen with entirely black legs and breast. I do not now think it will prove distinct.

40. **Clerus varius.**

Clerus varius, Klug, loc. cit. p. 296[1].

Hab. Mexico[1].

"Clerus rufus; thorace cingulis duabus rufis nigro-marginatis; elytris nigris fasciis maculisque flavis. Long. lin. $3\frac{1}{2}$." (*Klug.*)

I have not been able to identify this insect; and it seems difficult to interpret the diagnosis which I quote as to the colour of the thorax. It was unknown to Spinola.

41. **Clerus atriceps.** (Tab. VIII. fig. 21.)

Clerus atriceps, Gorh. Cist. Ent. 1876, p. 82[1].

Hab. Guatemala, Aceituno (*Salvin*[1]), Capetillo, Dueñas, Zapote, San Gerónimo, Las Mercedes, El Tumbador, Cerro Zunil (*Champion*).

Var. elytris maculis quatuor nigris, pallide cingulatis.

Hab. Panama, Volcan de Chiriqui (*Champion*).

A very large series of specimens have now been sent of this species, showing that it is subject to a good deal of variation. In a few from Zapote, Las Mercedes, and Cerro Zunil the head is red; in some the black at the base is divided, forming two subhumeral

spots; but in all, except the remarkable variety from Chiriqui, the posterior black band is entire or not quite touching the outer margin.

Although this insect has somewhat the facies of *Cleronomus amœnus*, I do not think it is more than a mere resemblance; yet it is very unlike the general appearance of the present genus.

42. **Clerus trogositoides.**

Clerus trogositoides, Spin. Mon. i. p. 269, t. 27. fig. 1.

Hab. Mexico.

Unknown to me.

43. **Clerus albofasciatus.**

Clerus albofasciatus, Chevr. Rev. et Mag. Zool. 1843, p. 24[1].

Hab. Mexico[1].

Apparently a species belonging to the group which follows—black, shining insects with little pubescence and narrower and more cylindrical thoraces than in the preceding species. This species is not, however, included by Chevrolat in the catalogue of species in his collection (Rev. et Mag. Zool. 1874, p. 10); and I have not seen it.

44. **Clerus scutellaris.**

Clerus scutellaris, Chevr. Rev. et Mag. Zool. 1874, p. 45[1].

Hab. Mexico, Orizaba[1] (*Sallé*), Jalapa (*Höge*).

A series of specimens were taken by Höge; there were four in Sallé's collection; and I have received it from M. Chevrolat.

45. **Clerus leucomelas.**

Tillus leucomelas, Chevr. loc. cit. p. 30[1].

Hab. Mexico, Orizaba[1] (*Sallé*).

This in colour resembles the preceding, but is quite different in form. The elytra are not compressed at the sides nor arched behind, as in *C. scutellaris*; and the thorax is much wider in front. The elytra have three linear spots of white hairs arranged in a fascia in the middle. It is, of course, not a *Tillus*. One specimen in Sallé's collection is thus named, and agrees with Chevrolat's description.

46. **Clerus nitidus.**

Clerus nitidus, Chevr. Rev. et Mag. Zool. 1843, p. 24[1].

Hab. Mexico, Toxpam[1], Cordova (*Sallé*).

I have the type specimen at this moment before me. It has the thorax with scarcely any punctures visible; the elytra have very little white pubescence and none in a fascia; a little is visible on the posterior half of the elytra, which appears shining when viewed from above.

There is a series of species very closely allied to this one, and which are extremely difficult to determine. The present insect does not agree with what I regard as *C. lævigatus*, Spin., which is from South America, and also cannot, I now think, be identified with the variable insect shown in our Plate under the name *C. nitidus*, and which appears to differ also from a species found by Höge.

47. **Clerus inconstans.** (*Clerus nitidus*, Tab. VIII. figg. 9, 10, 11.)

Niger, nitidus, subdepressus; prothorace parce leviter punctato; elytris fascia haud conspicua e pube brevissima cinerea consistente, ad suturam versus basin recurvata ornatis. Long. 8 millim.

Hab. Guatemala, Dueñas, Calderas (*Champion*).

Var. α. Pedibus rufis; tarsis obscuris.

Hab. Guatemala, Capetillo, Dueñas (*Champion*).

Var. β. Prothorace læte rufo; pedibus vel nigris vel rufis.

Hab. Guatemala, Capetillo, Calderas (*Champion*); Costa Rica, Rio Sucio (*Rogers*).

Var. γ. Elytris lividis, sutura nigra; prothorace vel nigro, vel rufo disco nigro; pedibus vel nigris vel rufis.

Hab. Guatemala, Capetillo, Dueñas (*Champion*).

A most difficult species to deal with. Small black specimens come very near *C. nitidus*; but, considering its rather larger size, and that *C. nitidus* does not vary in the same way in its Mexican localities, I think it must be kept distinct. I have seen no undoubted specimens of *C. nitidus* which exhibit a pale fascia of hairs running from the centre of the margin backwards.

48. **Clerus mollifasciatus.**

Clerus mollifascia, Chevr. Rev. et Mag. Zool. 1874, p. 46[1].
Clerus lævigatus, var. *nebulosus*, Spinola, Mon. i. p. 238, t. 21. f. 2.?

Hab. Mexico[1], Jalapa (*Höge*), San Andres, Orizaba, Tepansacualco, Tuxtla (*Sallé*); Guatemala, Capetillo, Cahabon (*Champion*); Panama, Volcan de Chiriqui (*Champion*); South America, Colombia.

Although I have received a note from M. Chevrolat upon this species, pointing out the characters upon which he relies, I am still in doubt as to its distinctness from *C. nitidus*, as well as to what *C. nebulosus* may be. Höge's specimens are of the same size as *C. nitidus*, viz. 6–6½ millim., and have the central band of white hairs composed of two or three separate linear spots obliquely placed; the Guatemala specimens are

smaller (5 millim.), and with the band more diffused and distinct in the middle; both of these forms have often a bluish tint. The Chiriqui examples hardly exceed 4 millim., the band exactly as in the Guatemala ones. That these are simply forms of one species, I do not think any one who had seen a large series could doubt. It appears to be a common species.

I do not at present adopt Spinola's name, because it is quite uncertain whether his two insects are varieties of one species or whether they are either of them identical with any of the varieties alluded to above.

49. **Clerus pilatei.**

Clerus pilatei, Chevr. Rev. et Mag. Zool. 1874, p. 44 [1].

Hab. Mexico, Yucatan [1], Teapa (*Pilate*).

Unknown to me.

50. **Clerus meridanus.**

Clerus meridanus, Chevr. loc. cit. p. 42.

Hab. Mexico, Merida in Yucatan (*Pilate, coll. Chevrolat et Gorham*).

51. **Clerus nigripes.**

Clerus nigripes, Say, Journ. Ac. Phil. iii. p. 191; Klug, Mon. p. 293; Spin. Mon. i. p. 263, t. 25. f. 3.

Hab. North America, United States.—Mexico (*coll. Gorham*).

Var. *Clerus rufiventris*, Spin. Mon. i. p. 263, t. 23. f. 3.

Hab. North America, United States; Mexico (*coll. Gorham*).

SALLÆA.

Sallea, Chevrolat, Rev. et Mag. Zool. 1874, p. 35.

Only one of the three species described by M. Chevrolat can be retained in this genus. The other two differ wholly in structure—*S. rubripennis* forming a new genus, which for convenience I place at present following this, and *S. bicolor* being referred to *Colyphus*.

1. **Sallæa necrobioides.** (Tab. VIII. fig. 15.)

Sallea necrobioides, Chevr. Rev. et Mag. Zool. 1874, p. 36.

Hab. Guatemala (*Sallé*).

One of the most remarkable of M. Sallé's discoveries, being very unlike any other Clerid known, and of doubtful location. It certainly, however, cannot come near *Chariessa* (as Chevrolat suggests), belonging as it does to the Clerides. The abdomen

(at least in the male) has a small sixth segment, which the author seems to have overlooked.

The species seems to be very rare, no more than two or three specimens having been met with at present.

BLAXIMA.

Caput sat magnum, oculis subtiliter reticulatis; antennæ clava brevi, articulis connatis, ultimo leviter falciformi; palpi labiales articulo ultimo securiformi, transverso, maxillares eodem subulato? Prothorax oblongus, antice leviter constrictus, basi marginatus. Elytra oblonga, subparallela, æqualiter rugose punctata, sat convexa. Pedes haud longi, femoribus posticis quam corpus multo brevioribus; tarsi quinque articulati, articulo primo brevi occulto, tribus sequentibus bilobis, lamellatis; ungues basi valde excisi.

The insect for which I propose this genus has several characters in common with *Sallæa*; but its general form is very different, rather resembling a *Trichodes*. Two of the specimens examined are males, the exserted genitalia being in evidence; but these do not exhibit any other external difference that I can discover.

1. **Blaxima rubripennis.** (*Clerus rubripennis*, Tab. VIII. fig. 14.)

Sallea rubripennis, Chevr. Rev. et Mag. Zool. 1874, p. 36 [1].

Hab. Mexico [1], Tepanistlahuca (*Sallé*); Guatemala, Capetillo (*Champion*); Costa Rica (*Rogers*).

Of this rare insect but one specimen has (so far as I am aware) occurred in each of the localities given above. It is, I believe, more nearly allied to *Clerus* than to any other genus; but its uniformly coloured elytra and blue body are unlike any thing in that genus, and its prothorax is not rounded at the sides and behind as so generally is the case.

EPICLINES.

Epiclines, Chevrolat, in Guér.-Mén. Ic. Reg. An., Ins. texte, p. 49 (1838).
Eurycranus et *Eurymetopum*, Blanchard, d'Orb. Voy., Ins. p. 72.
Dereutes, Chevr. Mém. Fam. Clér. 1876, p. 29.
Trichodes, Philippi, Stettin. ent. Zeit. 1864, p. 266.

Much confusion exists about this genus. Briefly, they are small insects very much resembling the genus *Thanasimus* in form, of which the majority have prominent eyes very slightly cut out, and belonging to the subfamily in which we place them. All the species hitherto described (and they are now over forty in number) are peculiar to Chili. The one now recorded belongs to the *Dereutes* section, which have prominent eyes, and is evidently nearly allied to such species as *T. viridis*, Phil.

1. **Epiclines viridiæneus.**

Viridi-æneus, nitidus; antennis, palpis et pedibus rufis, antennarum clava tarsisque obscuris. Long. $4\frac{1}{2}$–5 millim.

Hab. Guatemala, San Joaquin (*Champion*).

Brassy green, shining. Mouth, antennæ, and palpi red; the club of the antennæ a little pitchy, their length scarcely that of the head and thorax; the latter longer than wide, with a few erect hairs and scattered obsolete punctures, the anterior and basal constricted lines faintly impressed. Elytra wider than the eyes, of nearly even width, sparsely pubescent, and with obsolete punctures, scarcely ever digested into rows; sutural impressed line distinct at the apex, vanishing near the base. Legs red, tarsi rather pitchy.

Remarkable as being the first instance I have met with of this genus extending beyond Chili. Only three examples have yet been found.

Subfam. *PHYLLOBÆNIDES.*

EPIPHLŒUS.

Epiphlœus, Spinola, Rev. et Mag. Zool. 1841, p. 75; Mon. ii. p. 5.

The species are all New-World. All the members of the subfamily have the eyes largely and angularly excavated on the inner side. They are commonest in equatorial South America, but are also well represented in Central America, as Mr. Champion's collections show.

1. **Epiphlœus setulosus.** (Tab. VIII. fig. 24.)

Epiphlœus setulosus, Thoms. Mus. Scient. ii. p. 60[1].

Hab. Mexico[1], Cordova (*Sallé*); Guatemala, San Gerónimo, Las Mercedes, Torola, Chacoj (*Champion*); Nicaragua, Chontales (*Belt*); Panama, Volcan de Chiriqui (*Champion*).

A common species, and met with in some numbers by Mr. Champion at Las Mercedes.

2. **Epiphlœus marginipes.**

Epiphlœus marginipes, Chevr. Rev. et Mag. Zool. 1874, p. 69[1].
Epiphlœus terzonatus, var. B, Gorh. Trans. Ent. Soc. 1877, p. 247[2].

Hab. Mexico[1 2], Cordova (*Sallé*), Mirandilla (*Champion*); Nicaragua, Chontales (*Belt*, *Janson*); Panama, Volcan de Chiriqui, Bugaba (*Champion*).—South America, Amazons, Ega[2] (*Bates*, *coll. Gorham*).

On comparing the specimens in Sallé's collection, and which served as types for M. Chevrolat, there is no doubt they are identical with the species described by myself; but there is a discrepancy in his description, it being the first joint of the club of the antennæ, *i. e.* the ninth joint, which is pale, as I have correctly described it. The South-American specimens have this joint usually fuscous, as the two terminal

ones are, and with the thorax and head pale pitchy red, the disk of the former alone being infuscate; but I still think they only represent one widely spread species.

The Chontales specimens agree with the Amazonian ones, except that they are more rufous and rather more deeply striate-punctate.

The Panama examples have the ninth joint fuscous, with one or two exceptions; and I am inclined to think the pale joint may indicate the female sex.

3. **Epiphlœus punctatus.**

Nigro-fuscus, parum nitidus, dense fortiter punctatus; elytris punctato-striatis, humeris striga minuta interdum obsoleta, fasciisque duabus, anteriore interrupta, posteriore valde undulata albido-flavis, maculaque parva subapicali concolori. Long. 4–5 millim.

Hab. GUATEMALA, Quiche Mountains (*Champion*).

At once distinguished from any species of the genus at present known to me by the deep, coarse and thick punctuation of the elytra. The extreme front margin of the prothorax is often red. The first pale fascia on the elytra generally consists of only a hook-shaped lunule, often divided into two spots; the second fascia is irregularly W-shaped, and the suture between the two is often pale, so as to leave a dark lateral spot between them. The body underneath is dark; the knees are pitchy red. About a dozen examples have occurred.

4. **Epiphlœus erythrocephalus.** (Tab. VIII. fig. 25.)

Nigro-fuscus, vix nitidus; capite prothoraceque antice rubidis; elytris dense fortiter punctato-striatis, pallidis, basi apiceque et macula laterali nigris; pedibus pallidis; antennis fuscis, articulis duobus basalibus rufis. Long. $3\frac{1}{2}$–5 millim.

Hab. MEXICO, Cordova (*Sallé*); GUATEMALA, Calderas, Capetillo, San Gerónimo, Cerro Zunil (*Champion*); NICARAGUA, Chontales (*Belt*); PANAMA, Volcan de Chiriqui (*Champion*).

Head usually rich red, thickly punctured, and having a granular look; sometimes obscurely black; antennæ fuscous, except their basal and second joints; thorax subquadrate, angled at the sides, where its disk is very thickly punctured; the front margin of the colour of the thorax less densely punctate. Elytra with rows of large punctures, evenly impressed from the base to the apex. Legs pale; tibiæ and tarsi very slightly infuscate.

The specimen figured is from the Volcan de Chiriqui.

PLOCAMOCERA.

Plocamocera, Spinola, Mon. ii. p. 17; Lac. Gen. Col. iv. p. 468.

The only species of *Plocamocera* is widely distributed in tropical South America, and varies in size. It resembles *Epiphlœus*, but has hairy antennæ.

1. **Plocamocera sericella.**

Plocamocera sericella, Spin. Mon. ii. p. 19 [1], t. 38. f. 4.

Hab. GUATEMALA, Pantaleon (*Champion*).—SOUTH AMERICA, Colombia [1], Para, Amazons (*Bates, coll. Gorham*).

On the single specimen collected by Mr. Champion it would be undesirable to found a new species, especially as I have seen South-American specimens which were inseparable from Colombian ones except by their much larger size. It is an obscure insect, with patches and fasciæ of grey hairs.

Subfam. *HYDNOCERIDES.*

HYDNOCERA.

Hydnocera, Newman, Ent. Mag. v. p. 379 (1838).

Hydnocera is the representative in the New World of a group of feebly formed but numerous species, of which *Lemidia* is the Australian type, those species referred to "*Hydnocerus*" by Westwood and others from other parts of the world not having any close connexion with the genus. Making allowance for these, which must be eliminated, about thirty species have been described, extending in their range from the United States to Brazil.

Section A. *Elytra abbreviated and attenuated towards their tips.*

1. **Hydnocera marginata.**

Hydnocera marginata, Gorh. Trans. Ent. Soc. Lond. 1877, p. 260 [1].

Hab. GUATEMALA, Aceituno [1] (*Salvin*).

Var. capite prothoraceque plus minusve nigricante.

Hab. GUATEMALA, San Gerónimo, Quiche Mountains (*Champion*); PANAMA, Boquete (*Champion*).

The specimens taken by Champion, only one from each of the above localities, all vary; that from San Gerónimo has the head and thorax entirely black, the suture broadly black in the middle, but the sides of the elytra quite pale.

This may be the *Hydnocera suturalis* of Spinola (Atlas, t. 39. f. 6; *H. limbata*, Spin. Mon. ii. p. 49).

2. **Hydnocera guatemalæ.** (Tab. IX. fig. 3.)

Hydnocera guatemalæ, Gorh. Trans. Ent. Soc. Lond. 1877, p. 261 [1].

Hab. GUATEMALA, near the city [1] (*Salvin*), Dueñas (*Champion*).

The four sepcimens from Dueñas do not show any important variation from the type. One of them is figured in the Plate.

3. **Hydnocera subulata.** (Tab. IX. fig. 4.)

Elongata, nigra, nitida, postice attenuata; dense fortius punctata; ore, antennis pedibusque flavis, illis clava fusca. Long. $5\frac{1}{2}$–7 millim.

Mas. Oculis magis distantibus.

Femina. Oculis antice approximatis.

Hab. Guatemala, Sabo, Senahu, Sinanja valley; Panama, Volcan de Chiriqui, Bugaba (*Champion*).

Head wide; eyes large, especially in the female, nearly smooth; antennæ yellow, excepting their terminal joint. Thorax with scattered deep punctures and an impressed central line; the sides swollen below the anterior constriction. Elytra deeply and rather closely punctate; their apex truncate, sutural angle mucronate, entirely black. Legs quite yellow.

4. **Hydnocera testacea.**

Elongata, testacea, nitida; elytris sparsim haud profunde punctulatis; capite linea occipitali, prothorace lateribus lineaque discoidali, elytrisque puncto apicali fuscis. Long. $4\frac{1}{2}$–6 millim. ♂ ♀.

Mas. Oculis distantibus.

Femina. Capite angustiore, oculis haud prominentibus.

Hab. Mexico, Playa Vicente (*Höge*); Guatemala, Cerro Zunil, Quiche Mountains (*Champion*); Panama, Volcan de Chiriqui, alt. 8000 ped., Bugaba (*Champion*).

Head smooth, with a fuscous vitta or only two or three dots in the middle; antennæ with their last joint touched with a darker cloud. Thorax with a dark line on each side, and one or more upon the disk, sometimes obsolete, occasionally black, with the front and hind margins pale. The pleuræ and (in the Bugaba specimen) sometimes the breast dark pitchy black. Apex of the elytra rounded, with a dark spot. In the Chiriqui examples the suture is often black. The Mexican specimen has none of the dark markings, and, I think, may pertain to a different species.

5. **Hydnocera lateralis.**

Nigra, nitida; ore, antennis (apice excepto), palpis, elytrorum margine laterali pedibusque testaceis; capite subtilissime coriaceo; prothorace oblongo parce punctulato; elytris crebre fortiter punctatis. Long. 5–$5\frac{1}{2}$ millim.

Hab. Panama, Volcan de Chiriqui (*Champion*).

The head in this species is wide, and the eyes prominent. The thorax is longer than wide at any part; it is swollen at the sides below the anterior constriction, but not strongly, and is, with the head and body, usually entirely black, but in some specimens is yellow in front and on the disk. The elytra are scarcely as wide as the head at their base; the marginal pale vitta commences from the humeral callus, which it covers, and is continued of nearly the same width to near the apex, where it ceases; the apex itself has a few projecting points. The elytra are attenuated and gaping at the apex; their sides are not very much narrowed. Eleven specimens.

6. **Hydnocera scapularis.**

Nigra, nitida; antennis basi, ore, palpis (apice fusco), prothorace, pectore, humeris pedibusque flavis, femoribus apice, tibiis intermediis et posticis basi apiceque infuscatis; prothorace inæquali, disco fere lævi. Long. 5 millim. ♂ ♀.

Mas. Oculis distantibus.

Femina. Oculis antice approximatis.

Hab. Panama, Volcan de Chiriqui (*Champion*).

Very nearly allied to *H. lateralis*, but differing so remarkably in colour that I think it must be a distinct species. Structurally the eyes are more globular, the thorax rather shorter and less punctulate, and the hind femora more clavate. The elytra are nearly as long as the body, and are coarsely punctured, especially towards the apex.

As two specimens only have been captured, it is hardly possible to pronounce positively on any of these characters being of specific value.

7. **Hydnocera subvittata.**

Nigro-fusca, nitidula; ore, antennarum basi, pedibus elytrorumque vitta subsuturali sordide testaceis; elytris (feminæ?) abbreviatis. Long. 5 millim. ♂ ♀?

Var. capite prothoracisque lateribus testaceis.

Hab. Guatemala, Chiacam, San Juan, Tamahu (*Champion*); Panama, Volcan de Chiriqui, Bugaba (*Champion*).

A very indefinite species, varying a good deal in size and colour, and (if I am right in uniting them as one) in the length of the elytra. The specimens with very much shortened elytra are from Bugaba, and have an obscure vitta. Specimens occur both from this and all the other localities with longer elytra, yet still attenuated and dehiscent at the apex. Those from San Juan have the vitta confined to a basal streak on each side of the scutellum. The hind legs have sometimes a cloud at the knees and a dark spot on the middle of the tibiæ; the tips of the hind tibiæ and their tarsi are also sometimes black.

This species is most nearly allied to *H. longicollis*, Zieg., of the other species known to me. The thorax is more widened on the sides, and it is larger.

8. **Hydnocera chalybeata.**

Subcærulea, nitida; ore, antennis, palpis, femoribus basi, geniculis, tibiis anticis totis, intermediis apice, maculaque juxta scutellum flavis. Capite crebre, prothorace parce fortiter punctatis; elytris basi leviter tumidis, omnium parce profunde punctatis, apice nitido subelevato. Long. 4–7 millim.

Hab. Mexico (*coll. Sallé*), Playa Vicente (*Höge*); Guatemala, Calderas, San Gerónimo, Capetillo (*Champion*).

Head wide, eyes hairy, apex of the labium and some of the joints of the antennæ faintly infuscate above, even between the eyes, the width between which is equal to the length of the head in all of the seven specimens now before me. Thorax as wide at the tubercular processes on the sides as the length; on the tubercles above is a double

punctiform impression; centre of the disk almost smooth; sometimes the head and thorax have a faint brassy tinge. Elytra steel-blue, shining; very distinctly, rather sparingly punctured, more finely and more closely so before the apex, in which part some shining grey hairs are clearly visible; they cover three quarters of the body's length. The legs vary somewhat in colour, the Mexican examples having the femora almost wholly yellow. In two specimens from Calderas the elytra want the yellow basal spot. This species is rather nearly allied to *H. flavifemorata*, Gorh. (Trans. Ent. Soc. 1877, p. 261), but will be distinguished by the absence of the pale fascia, as well as by the shorter elytra with smooth elevated apices.

9. **Hydnocera pulchella.**

Nigro-subcærulescens, femoribus basi flavis; elytris macula subhumerali fasciaque pone medium, interrupta cinereo-pubescente, testaceis. Long. 6 millim. ♂.

Hab. Panama, Volcan de Chiriqui (*Champion*).

Var.? Ore, antennis, pedibus, elytrorum humeris maculaque postica parva testaceis.

Hab. Guatemala, San Gerónimo; Panama, Volcan de Chiriqui (*Champion*).

Resembles the preceding species a little; but the elytra are not shortened nor tumid at the apex, but almost cover the abdomen, and are punctured at the apex. The head and thorax are both very thickly punctured; and hence the latter appears more opaque. The antennæ and legs are darker in the typical specimens; and the pale basal spot is not on the base, but below the shoulder, between it and the suture. The elytra are of a fine dark steel-blue, less narrowed behind than in *H. chalybeata*, and reach nearly as far back as the hind femora do, whereas in such species as have shortened elytra they scarcely reach beyond one third of the femora.

10. **Hydnocera nitidicollis.** (Tab. IX. fig. 9.)

Hydnocera nitidicollis, Chevr. Rev. et Mag. Zool. 1874, p. 71[1].

Hab. Mexico (*coll. Gorham*), Puebla[1] (*coll. Sallé*).

The elytra are greenish, with an anterior fasciate patch formed of white hairs, and another fascia behind the middle white, clothed also with white pubescence. The head and thorax coppery.

Apparently rare; there are only two specimens in Sallé's and one in my own collection.

11. **Hydnocera trichroa.** (Tab. IX. fig. 5.)

Brevis, oblonga, nigro-subæneseens, omnino crebre subtilissime punctata; ore, antennis, pedibus basi, tarsis anticis humerisque late rufis; elytris medio albo-fasciatis. Long. 4–5½ millim.

Hab. Guatemala, Dueñas, San Gerónimo (*Champion*).

Head and thorax obscurely greenish black, very closely punctured, opaque; anterior constriction of the latter but faintly impressed. Elytra rather parallel, covering the

wings, but broad and short; the shoulders and base rusty red; about the middle a white fascia, separated by the blackish ground-colour (which also invests the suture at the base and scutellum) from the red, apical half blackish. Legs black, extreme base and four anterior tarsi red, tips of the middle pair dark.

Three specimens have been sent.

12. **Hydnocera hæmatica.**

Nigra, nitida; thorace (maris?) parce punctato; antennarum basi, palpis elytrisque basi rufis. Long. $5\frac{1}{2}$ millim. ♂?

Hab. Mexico, Puebla, Cuernavaca (*Sallé*).

Nigra, subopaca; thorace elytrisque crebre, subrugose punctatis; elytris basi rufis. ♀?

Hab. Mexico, Cuernavaca (*Sallé*).

I have scarcely a doubt that these two forms belong to one species, though I am not certain to which sex to refer them. It is a species very much like *H. humeralis*, Say, which occurs in Texas and probably in Mexico, from which it differs in not being of a blue-black colour, in having the red portion at the base extending to the margin and further down the elytra, only leaving the suture and scutellum black (in one female the red extends completely across the base), in not having the antennæ entirely red, in having the elytra slightly narrowed to the apex, and (as I think) in having longer femora, of which the hind pair reach behind the apex of the elytra.

13. **Hydnocera clavata.**

Nigra, nitida; capite prothoraceque vix punctatis parcius pilosis, oculis antice approximatis; antennarum articulo basali et duobus penultimis pallidis; elytris quam corpus brevioribus, plaga magna humerali pedibusque testaceis; femoribus posticis incrassatis, tibiis posticis apice nigris. Long. 7 millim. ♂.

Hab. Mexico, Juquila (*Sallé*).

This species, with the exception of the legs, is coloured like *H. hæmatica*. The eyes nearly contiguous in front and the swollen posterior femora are unusual characters; I have not observed the latter in any other species: while I think both of the two specimens in Sallé's collection are males, I think at the same time that this latter may not prove to be a sexual character. The legs, including the coxæ, are entirely pale, with the exception of a small black piece at the apex of the hind tibiæ, and that the claws are brownish. The elytra are evenly, not coarsely, punctured. The apical joint of the antennæ is black, but the two preceding ones are whitish; one or two at the base are also pale.

14. **Hydnocera obscura.**

Sordide fusca; antennis basi, palpis, pedibus, elytris macula subhumerali et ad apicem indeterminate testaceis; prothoracis margine antico et postico rufo. Long. $3\frac{1}{2}$–5 millim.

Hab. Guatemala, San Gerónimo, Paso Antonio, Rio Maria Linda (*Champion*); Panama, David, Chiriqui (*Champion*).

This little species is obscurely coloured and varied with pale and pitchy fuscous markings; but of these the paler margins of the thorax and the spot at the base of the elytra (which at times leaves only the humeral point and the scutellum with an obscure cloud around it fuscous) are tolerably constant. The elytra cover the body, are a little narrowed behind, and have the apex scarcely, if at all, serrate. Their puncturing is close and intricate. The femora and tibiæ of the four hinder legs are widely clouded, with the knees and base paler in darker specimens; and in these the antennæ have the apical joint fuscous; in other specimens both the antennæ and legs are entirely testaceous. This insect has very much the facies of a small species of the eastern genus *Stigmatium*.

There are ten specimens, of which seven are from San Gerónimo, which I refer to this species.

15. **Hydnocera sordida.**

Sordide picea, obscura; antennis, palpis, pedibus anticis partim, elytrisque macula subhumerali flavis. Long. 4–5½ millim.

Var. Elytris vitta submarginali cum macula basali conjuncta flava.

Hab. Mexico, Guanajuato (*Dugès, coll. Sallé*).

A species in many respects rather nearly allied to the preceding one. It differs in the head being more contracted behind, which gives the eyes a more prominent look. The thorax is wholly pitchy and, with the head, is very closely and subrugosely punctured. The elytra do not narrow behind so decidedly as in *H. obscura*; the legs are darker, the front and middle femora are obscurely red, with a dark cloud on their upper margins; the hind pair are usually wholly dark, or with the extreme base or the trochanter alone yellow. The elytra have a basal spot, and usually some trace of a vitta near the outer margin reddish yellow; sometimes this vitta is prolonged to near the apex, and unites with the basal spot. The tip of the humeral callus is usually pitchy; but in one specimen a rufous patch extends over the greater part of the base.

The seven specimens in Sallé's collection are numbered 584 and 585; but I consider them all referable to one species.

Section B i. *Elytra covering the abdomen; shoulders not carinate.*

16. **Hydnocera corticina.** (Tab. IX. fig. 6.)

Elongata, subparallela, fusco-brunnea, crebre fortiter punctata; elytris basi apiceque æquali latitudine, in medio parum angustatis, fascia mediana ad suturam recurvata, indistincta, apiceque subalbidis; pedibus variegatis, pallidis, genibus latius fuscis. Long. 5–7 millim.

Hab. Mexico (*Sallé*); Guatemala, El Tumbador, Las Mercedes, Cerro Zunil (*Champion*).

Head wider than the thorax across the tubercular swellings, with some shining hairs in front, of a ferruginous colour, finely rugulose. Thorax darker than the head, granulate punctate, rough, the sides suddenly swollen in front of the middle, the basal and front margins and sometimes the whole thorax ferruginous. The elytra are thickly and coarsely punctured; at the extreme apex the punctures are obsolete, and the front of the white portion there is clothed with silky white hairs; about the middle there is a curved white fascia, turning towards the apex at the suture; there is also a badly defined oblique line of white hairs from the humerus, meeting at the suture. The elytra are usually brown at their base, but are darker between the fascia and the apex, and are sometimes dark in the basal half, excepting at the margins. They have often a bluish æneous tinge. Seven specimens were collected at Las Mercedes, only one or two in each of the other localities. I cannot distinguish the sexes. The specimen figured is one from El Tumbador.

17. **Hydnocera intricata.**

Fusca, parum nitida; capite prothoraceque æneo-micantibus, hoc disco intricato ruguloso, antennis et palpis fuscis, basi dilutioribus; elytris distincte parcius punctatis, basi apiceque conjunctim cum sutura late pallidis, marginibus fuscis, medio albido-fasciato; pedibus basi pallidis, femoribus apice tibiisque saturatius brunneis, vel piceis. Long. 6–7 millim.

Hab. GUATEMALA, Sinanja valley, Vera Paz (*Champion*).

Like *H. corticina*, but more parallel, the elytra not contracted at the middle of the margin. The rugulose thorax, which, with the head, is brassy, seems to indicate a distinct species.

18. **Hydnocera nigro-ænea.**

Hydnocera cærulea (Dugès, coll. Sallé).

Nigro-cærulea, parum nitida, lata, parcius distincte punctata, nigro-pilosa, pube brevi cinerea depressa parce vestita; corpore infra cum pedibus nigris. Long. $5\frac{1}{2}$ millim.

Hab. MEXICO, Guanajuato (*Dugès, coll. Sallé*), Puebla (*Sallé*).

Head and thorax black, very obscurely brassy, very finely and obsoletely punctured, the sculpture almost hidden by the numerous upright hairs and rough depressed pubescence. Antennæ and palpi dark brown. Thorax as wide as long. Elytra very nearly covering the body, wider than the head, very densely covered with small punctures; narrowed a little to the apex, and with depressed ashy hairs and upright pile which is black; obscurely brassy black. This is a robust and moderately convex insect, differing from the one which follows in many respects, notably in its much finer puncturing of the elytra and broader form. There is only one specimen in the Sallé collection (No. 579), which is bluish black; others from the same locality, six in number, and one from Puebla, agree in being brassy (Nos. 578, 580, 581, 582), and pertain, without doubt, to one species. The mouth and anterior tibiæ are obscurely red in some examples.

19. **Hydnocera cyanipennis.**

Nigra, oblonga, parallela; supra æneo-micans, elytris cyaneis, crebre et fortiter rugose punctatis; ore, palpis, antennarum basi trochanteribusque flavis. Long. 5 millim.

Hab. GUATEMALA, Calderas, Capetillo, Quiche Mountains (*Champion*).

A very much narrower, more parallel and slightly built species than *H. nigro-ænea*. The underside is shining black, the only yellow parts being the mouth (the labrum excepted), palpi, antennæ (excepting the upperside of the last joint and one or two preceding it), and trochanters; sometimes, however, the anterior tibiæ are obscurely pale. The disk of the thorax is finely and irregularly rugulose; the widest part is a little in front of the middle; the upright pile and the pubescence is much less dense than in *H. nigro-ænea*. The elytra are greenish blue, with coarse, closely packed, and occasionally confluent punctures, irregularly disposed but uniformly distributed. There is a very indistinct commencement of a fascia of ashy hairs on the middle of the margin. The elytra cover the abdomen completely, and are together rounded at their apices. Nine specimens from Calderas, one from each of the other localities.

20. **Hydnocera cincta.** (Tab. IX. fig. 8.)

Hydnocera cincta, Spin. Mon. ii. p. 48, t. 39. fig. 5[1].

Hab. MEXICO (*Sallé*); GUATEMALA, Capetillo, Dueñas, Zapote, Cerro Zunil, Las Mercedes, Rio Maria Linda, Guatemala city; PANAMA, Boquete, Volcan de Chiriqui (*Champion*).—SOUTH AMERICA, Cayenne [1], Amazons (*Bates, coll. Gorham*).

The specimen figured is one from Cerro Zunil. Varies in the colour of the legs, from nearly black with pale bases, to pale with only the knees, hind tibiæ, and tarsi darker.

Although found in such widely separated localities, I have no doubt that my own specimen from South America and the series collected by Champion belong to one species; and I think there is hardly any doubt I have identified it correctly with Spinola's species.

Section B ii. *Elytra covering the abdomen; shoulders carinate, lateral margin sinuate posteriorly.*

21. **Hydnocera cryptocerina.**

Nigra, obscure cærulescens, fortiter subrugose punctata; elytris medio albo-fasciatis, fascia ad suturam interrupta, ad marginem latiore; capite prothoraceque obsoletius punctatis; pedibus basi, genis et antennis (apice excepto) testaceis, humeris etiam nonnunquam puncto pallido notatis. Long. 4–5 millim.

Hab. GUATEMALA, Chacoj, Teleman, El Reposo, El Tumbador (*Champion*).

In the section to which this species belongs the humeral callus is prolonged as a curved carina towards the suture, and the margin is a little reflexed and beyond the

middle curves upwards. From Spinola's description of *H. bicarinata* (a Brazilian species) it is not clear whether that species has *two* carinæ, or one only and the reflexed margin; but it is evidently a species of the same section as the present one.

H. cryptocerina bears some resemblance to *H. cincta*. The antennæ are yellow with the apical joint a little darker, the head is bluish with the mandibles and mouth a little pitchy. The front can scarcely be seen to be punctured with a Coddington lens, but is rough and clothed with a few ashy hairs; the thorax is about as long as wide at the widest part, roughened behind, very indistinctly carinate. The elytra are very roughly punctured, not shining between the punctures as in *H. cincta*, but here and there clothed with ashy hairs, which are most evident along the carina, on its inner edge, and towards the apex of the elytra. There is usually a space on each side of the fascia free from them, which hence appears black and throws up the fascia, reminding one of *Clerus contractus*. It appears to me, indeed, that both of these species mimic ants of the genus *Cryptocerus*, or *vice versâ*, the white fascia of the beetles giving them the requisite constricted look, and the white parts of the *Cryptocerus* withdrawing from observation those parts which would, if seen, destroy the resemblance.

22. **Hydnocera impressa.** (Tab. IX. fig. 7.)

Nigro-cærulea, nitida; elytris fortiter punctatis, obsolete carinatis, margine leviter sinuato, lineis duabus obliquis, e pube cinerea formatis, ad scutellum conjunctis. Long. 4–5 millim.

Hab. Panama, Volcan de Chiriqui (*Champion*).

Var.? Pedibus basi et interne testaceis, elytris puncto cinereo pubescente tantum ornatis.

Hab. Mexico, Cordova (*Sallé*).

Readily separated from *H. bituberculata* (which follows) by the elytra being evenly, though sparingly, punctured throughout, and by their being more parallel. The humeral carina is not very distinct. The line of shining ashy hairs is very oblique; starting from near the scutellum, it reaches the margin behind the middle. The thorax is narrower, less swollen at the sides in front. The specimen from Mexico certainly differs from the typical ones in several respects; but its punctuation and parallel form are those of this species. Nine specimens were taken at Chiriqui, one of which is figured.

23. **Hydnocera bituberculata.**

Hydnocera bituberculata, Chevr. Rev. et Mag. Zool. 1874, p. 71[1].

Hab. Mexico, Cordova [1] (*Sallé*); Guatemala, San Juan (*Champion*); Panama, Bugaba, David, Volcan de Chiriqui (*Champion*); Nicaragua, Chontales (*Janson*).

The elytra in this insect are coarsely punctured at the base, but much more obsoletely and sparingly so in the apical half, where also they are a little widened. The thorax

is more of a greenish blue than in the preceding. The carina is much more acutely marked, and often continues to within one third of the apex. The shining pubescence is almost confined to a spot; and the legs are more frequently pale. I was once inclined to think the Panama and Nicaragua specimens were a different species, on account of the carina being more produced; but I am now disposed to unite them as local forms only.

24. Hydnocera quadrilineata.

Hydnocera quadrilineata, Chevr. Rev. et Mag. Zool. 1874, p. 71[1].

Hab. GUATEMALA, Yucatan, Teapa[1] (*Pilate*).

Unknown to me; apparently allied to *H. marginata*.

ISOLEMIDIA.

Isolemidia, Gorh. Trans. Ent. Soc. 1877, p. 257.

The species for which this genus was proposed resemble rather closely the *Lemidiæ* of the Australian region, but are in reality more nearly allied to *Hydnocera*. From *Dereutes*, Chevr., to which the insect now described is also apparently allied, the want of any sinus to the eyes will serve to distinguish it; they are, in fact, entire; the antennæ are eleven-jointed, with a small, rather connate, three-jointed club. The four species originally included in the genus were all from the South-American continent, three being from the Amazons, and one from Rio Janeiro, though not quite satisfactorily placed there. And the present species may require a fresh genus for its reception when comparison has been made with my typical species, which I am unable to make at the present time.

1. Isolemidia subviridis.

Nigra, nitida; antennis, palpis, pedibus elytrisque olivaceo-viridibus, his basi, sutura apiceque indeterminate nigro-piceis, lævibus; oculis subglobosis, integris; antennis brevibus, quam caput paullo longioribus. Long. 6 millim.

Hab. PANAMA, Volcan de Chiriqui (*Champion*).

Head with the eyes wider than the thorax, the front between them as wide as the front of the thorax, finely strigose near each eye and punctured in the middle. The antennæ have the joints succeeding the basal one not much longer than wide, the three last transverse, forming a short oblong club. The thorax is constricted in front and behind, the sides widened and rounded, much as in *Hydnocera*; the frontal part transversely strigose, the disk smooth, with a few shallow impressions on the sides and near the base. Elytra smooth, with very obsolete indications of striæ; the shoulders distinct, with a very small callus, which is brown; the scutellar region is greenish; in one specimen the base is black, in the other it is olivaceous to beyond the middle, the

greenish line being iridescent or a mere surface-tint; the extreme apex is brownish, but before this tint it is black, as well as the suture in its whole length. The legs are dark externally, greenish internally.

Two specimens only of this have been sent, among Mr. Champion's latest captures on the Volcan de Chiriqui.

Subfam. *ENOPLIIDES.*

ICHNEA.

Ichnea, Cast. Silber. Rev. Ent. iv. p. 55.

A genus remarkable for the closeness with which its species mimic small Lycidæ and Lampyridæ. It is found all over the warmer parts of both the northern and southern continents of America, being represented in the United States by one species, *I. laticornis*, Say. The species are generally rare in collections, but probably only require looking for carefully in their haunts, since a very considerable number of some were found by Mr. Champion. About twenty-four species are now described, chiefly from South America. A memoir on the genus will be found in the Trans. Ent. Soc. Lond. 1877, p. 409.

a. *Antennæ distinctly eleven-jointed.*

1. **Ichnea histrica.** (Tab. X. fig. 1.)

Nigra, capite prothoraceque flavis, hoc antice angustato, lateribus sinuatis plagaque mediana nigris; elytris postice paullo ampliatis, seriatim punctatis, plaga humerali ultra medium producta ferruginea, limbo laterali tenuiter, sutura trienteque apicali oblique nigris. Long. 8–9 millim.

Hab. Panama, Bugaba (*Champion*),

Allied to *I. lycoides*, but with the thorax less suddenly bowed behind at the sides, yet constricted in front, where it is narrower than at the base. The sides are impressed; and there is a small punctiform impression on the base in front of the scutellum. The elytra are evenly punctured in close-set rows; the yellow humeral streak is clothed with a fine, silky, shining golden pubescence, which is also visible upon the yellow lines of the thorax and on the head behind. The yellow extends further along the margin than near the suture; it is divided for a short distance by a black streak from the apical portion; the suture is black throughout as far as the second series of punctures. The front pair of legs are wholly black; the middle and hind pairs have the femora yellow in the basal half.

This species is not unlike a small *I. mexicana*, from which its serial punctuation and the central black vitta of the thorax distinguish it. It is also not very dissimilar from *I. funesta*, Gorh., to which it is allied both in the form of the thorax and in the black vitta. In that species the humerus is only adorned with a narrow and short yellow striga, and the thoracic vitta is much more attenuated anteriorly. In colour this species

most resembles *Calopteron obliquum*, but has a strong general likeness to many species. Only three specimens have yet occurred.

2. **Ichnea mexicana.** (Tab. IX. figg. 18 ♂, 19 ♀, 21 var.)

Ichnea mexicana, Thoms. Mus. Scient. p. 65[1]; Chev. Mémoire, 1876, p. 36 (♀)[2].

Hab. MEXICO [1] [2], Cordova (*Sallé*), Juquila (*Boucard, coll. Sallé*); GUATEMALA, San Gerónimo, Capetillo (*Champion*); NICARAGUA, Chontales (*Belt*).

Var. MEXICO, Cordova (*Sallé*); GUATEMALA, Cerro Zunil; PANAMA, Volcan de Chiriqui, Bugaba (*Champion*).

M. Chevrolat evidently considers the wider individuals to be the males; on the contrary, though the apical segments are not specially modified in either sex, I believe the narrower and more parallel ones are the males. The club ("la massue") of the antennæ is not correctly described by him [2] as consisting of four joints. The third to eighth joints are shortened and strongly transverse, and form an apparently single mass, their hairiness making it difficult to count them separately. The three terminal joints are large and compressed. It is evident that this adds to the illusive resemblance to some species of *Calopteron*, such as *C. ichnoides*. The variety has the elytra either entirely yellow, or yellow more or less clouded at the apex.

Fig. 18 is of a specimen from San Gerónimo (male); fig. 19 is a female from Cordova; and fig. 21 is a male of the variety from Cerro Zunil.

3. **Ichnea panamensis.** (Tab. X. fig. 2.)

Nigra, superne ochracea; prothorace lineis duabus discoidalibus basi conjunctis, haud bene discretis, nigris; elytris apicem versus paullo ampliatis, punctato-striatis, seriebus punctorum pone medium confusis, ad basin lineolis subsuturalibus et scutello nigrescentibus. Long. 8–10 millim.

Hab. PANAMA, Bugaba (*Champion*).

Head ochre-yellow; antennæ, mandibles, and tips of the palpi black, an indistinct line behind the eyes, and continuous with the thoracic line, blackish. Thorax very slightly narrower in front than behind, more depressed than in *I. mexicana*, sides sinuous, a conspicuous depression on each side behind the middle, and a smaller one in front of the scutellum on the middle of the base: besides the two ill-defined lines on the disk, there are two lines on the underside, on each side below the margin, with a corresponding spot on the head. The elytra are of a rich ochraceous yellow, with very frequently a short dark streak from the scutellum, diverging a little from the suture; the series of punctures are often continued at the sides beyond the middle. The legs are black, with the exception that the front pair and sometimes the middle and hinder ones have their bases faintly yellow on the inner sides. The specimens which I accord to this species appear to be all females; but with them males have been found which, from their quite dissimilar puncturing, as well as from other differences in the mode of coloration, I have considered to be a remarkable variety of *I. mexicana*,

one of which is shown in the figure 21 of Tab. IX. *I. mexicana* has always three interstices slightly costate; the puncturing between these is very thick and nowhere in rows, as it is over the whole elytra; the shoulders and the thorax in that species have some close golden sericeous pubescence: in all these respects, as well as in the black sides of the thorax, the variety alluded to agrees with *C. mexicana*, and not with the species now described. The present species agrees more nearly with *I. mitella*, Gorh., a South-American insect, and belongs to the same section of the table in Trans. Ent. Soc. 1877, p. 409.

4. **Ichnea religiosa.** (Tab. IX. fig. 20.)

Ichnea religiosa, Chev. Rev. et Mag. Zool. 1874, p. 72[1].

Hab. MEXICO, Oaxaca [1], Yolotepec (*Sallé*); GUATEMALA, San Gerónimo (*Champion*).

The only apparent difference between this and males of *I. mexicana* is that the elytra are entirely black; and I think it is only a variety of that species. I have not, however, seen females, or at least not specimens with the elytra widened behind, of this form. The figure is of a specimen from Yolotepec.

5. **Ichnea disjuncta.** (Tab. IX. figg. 23, var. 24.)

Ichnea disjuncta, Gorh. Trans. Ent. Soc. 1877, p. 411 [1].

Hab. NICARAGUA, Chontales (*Belt*).—SOUTH AMERICA, Amazons, Ega[1] (*Bates, coll. Fry*).

Figure 23 and the variety shown in fig. 24 are both Chontales specimens.

I. præusta, Klug, is given in the Munich Catalogue as a synonym of *I. lycoides*. I have seen a totally different species so named, which is rather nearly allied to *I. disjuncta*, and has the elytra similarly coloured; it is in my own collection from the Amazons, but is quite distinct from the present species.

6. **Ichnea enoplioides.** (Tab. IX. fig. 22.)

Ichnea enoplioides, Spin. Mon. ii. p. 25 [1], t. 37. f. 1, 2.

Ichnea circumcincta, Chev. Rev. et Mag. Zool. 1874, p. 73 [2].

Hab. MEXICO, Cordova (*Sallé*), Juquila (*Boucard, coll. Sallé*); GUATEMALA, San Gerónimo, Senahu (*Champion*); NICARAGUA, Chontales (*Belt*).—SOUTH AMERICA, Colombia [1], Cayenne [1], Amazons (*coll. Gorh.*).

From the number of MS. names quoted by Spinola, and others which I find attached to unimportant variations of this insect, it is clearly a misunderstood species. Yet Spinola's figures seem recognizable enough; it is a widely spread species, extending, perhaps, even to Brazil; for I possess a specimen so labelled.

b. *Antennæ apparently ten-jointed.*

7. Ichnea aterrima.

Ichnea aterrima, Klug, Gemm. & Har. Cat. Col. p. 1751 [1]; Sallé coll.
Enoplium aterrimum, Klug, Abhandl. Ak. Berl. p. 378 [2]; Spin. Mon. ii. p. 162.

Hab. Mexico [1 2], Guanajuato (*Dugès, coll. Sallé*).

The species thus labelled in Sallé's collection has very much the appearance of an *Epiclines* such as *E. basalis*, but in the structure of the antennæ shows a clear affinity to *Ichnea*. The palpi are cylindric and truncate, as in that genus; but the prothorax exhibits a marked distinction in having sharply defined lateral margins and certain ill-defined longitudinal ridges and sulci. The elytra are opaque dull black, very finely punctured, and coriaceous.

I think it will be eventually separated with the species which follows, which is closely allied to it, to form a new genus.

8. Ichnea dugesi.

Atra, opaca, subtilissime punctata, prothorace subquadrato, lateribus et infra saturate rufis; elytris modice dilatatis, sutura paullulum elevata. Long. 7–8 millim.

Hab. Mexico, Guanajuato (*Dugès, coll. Sallé*).

Very closely allied to the preceding species, and hardly to be distinguished from it except by the colour of the thorax. The head is rough and opaque, the antennæ and palpi black: of the antennæ the intermediate joints (that is, the third to seventh) are obconic, hairy on their inner edge, but quite distinct; the eighth and ninth expanded, and nearly as long as the part of the antennæ preceding them; the tenth elongate, sinuate on its inner margin, nearly as long as the two before it. The thorax is as wide as long, with the sides a little expanded, but without any trace of tubercle; each side of the disk is impressed with a broad shallow depression; the edge is sharply margined, the margin extending round the base; constricted lines are not present. The underside is shining black. There are five specimens in Sallé's collection.

APOLOPHA.

Apolopha, Spinola, Mon. i. p. 381; Lac. Gen. des Col. iv. p. 482.

The association of the three species here given with Spinola's genus is doubtful; for there is a discrepancy between his description of the number of joints in the antennæ and the number shown in the plate (t. 36. f. 1). Eight is the number he names, and that is the number I count in my species; but, owing to the intermediate joints being hairy on the inner side and reduced in length, it is probable that the rudiments of one or two more are present. There is an obvious affinity to *Ichnea* in the structure of these organs.

The type of the genus was a unique insect in Reiche's collection from Colombia; and I am not aware that it has ever been rediscovered.

1. **Apolopha trilineata.**

Ichnea trilineata, Chev. Rev. et Mag. Zool. 1874, p. 73 [1].

Hab. MEXICO, Cordova [1] (*Sallé*).

The eyes are more prominent than in *Ichnea*, the centre of the thorax with a black vitta; the head, sides, and underside of the thorax are yellow; the elytra greyish black, opaque, with close rows of punctures in striæ, the punctures closely packed, large, and irregular in form and size, and with the striæ becoming confused before the apex.

There were three specimens in Sallé's collection.

2. **Apolopha chiriquiana.**

Griseo-nigra, capite, prothorace infra et lateribus, sutura tenuiter, pedibusque partim pallide flavis; elytris distincte striato-punctatis; antennarum articulis tribus ultimis quam reliqui triplo fere longioribus. Long. 5–5½ millim.

Hab. PANAMA, Bugaba, Volcan de Chiriqui (*Champion*).

About equal in size to the smallest specimen of *A. trilineata*; but none of the six specimens which have reached us attain the size of the two larger specimens of that species. It is also to be distinguished by its pale suture, which does not quite reach the base or the apex, and by the more regular series of squarish punctures; these series are about ten in number on each elytron. The thorax has a rather large round impression on each side of the disk. The head is black behind each eye. The antennæ are blackish, the basal joint curved, the second bead-shaped; the third, fourth, and fifth form together an obconic mass, and are not easy to see separate. I sometimes think I can see a sixth, before the three large terminal joints; if so, it is shorter and narrower than the preceding one, and closely connected with the first of the club. The front legs are black or fuscous, with pale knees; the four hinder ones are pale, with the femora darkened externally and near the apices, and tibiæ dark, excepting at the knee.

Six specimens have been found, two of which were from Bugaba.

3. **Apolopha linearis.**

Parallela, grisea, punctata, capite prothoraceque ferrugineis, hoc medio nigro vittato, tibiarum basi femoribusque pallidis; antennis quam caput thoraxque fere duplo longioribus. Long. 5 millim.

Hab. PANAMA, Bugaba (*Champion*).

In this species the eyes are not so prominent, nor is the head so constricted behind, as in *A. chiriquiana*; it is a more linear insect, the head being scarcely wider than the thorax. The head has the same black portion behind the eyes, but is more fully received into the thorax. The latter is not so much clothed with silky hairs; and hence the

punctuation is much more distinct upon its disk; also on each side there is only a very faint impression, the sides are slightly sinuate, the front angles acute, the posterior rounded off. The elytra are unicolorous. The antennæ are proportionally longer.

Two specimens are all I have found among the numerous Cleridæ collected by Champion at Bugaba.

PLATYNOPTERA.

Platynoptera, Chevrolat, in Silb. Rev. Ent. ii. no. 18 (1834).

Of this remarkable genus eight species have been described, all from Tropical America. They present the best-known and perhaps the most perfect instance of mimicry between themselves and the Lycidæ.

1. **Platynoptera duponti.**

Platynoptera duponti, Spin. Mon. ii. p. 64[1], t. 41. f. 4.

Hab. Mexico[1].

I have never seen this insect. From the plate in Spinola's Atlas, it would seem not to be unlike the *Pyticera* of the same name, but to have the full complement of eleven joints to the antennæ, and to have the apical joint more excavated.

2. **Platynoptera mexicana.** (Tab. IX. fig. 11.)

Platynoptera mexicana, Thoms. Mus. Scient. 1860, p. 65[1].

Hab. Mexico[1], Paso del Macho (*Höge*); Mirador (*Sallé*); Guatemala, Cubulco, Vera Paz (*Champion*).

The species of *Platynoptera* would all seem to be rare, but are perhaps only so in collections, owing to the protection their resemblance to some common species of *Lycus* would give them; for it is quite sufficient to deceive even a good naturalist. The resemblance is more general than specific. The present species varies in the amount of blue at the base of the elytra, some examples having scarcely any trace of the dark basal patch, in which case they imitate the variety of *Calopteron bifasciatum* (cf. Tab. I. fig. 12). Höge met with a number of specimens at Paso del Macho.

PYTICERA.

Pyticera, Spinola, Mon. ii. p. 69; Gorh. Trans. Ent. Soc. 1877, p. 416.
Platynoptera (pars), Lac. Gen. Col. iv. p. 478.

The name *Pyticera* was applied by M. Dupont to the type of the genus *Ichnea*, viz. *I. lycoides*. It is not, therefore, strictly appropriate here. There is again, also, as is the case in *Apolopha*, a discrepancy between the number of joints assigned to the antennæ in the printed description, viz. nine, and the number shown in the figure of the same species, where it is ten. The fact appears to me to be that the figure is correct. In addition to Spinola's species, I have described two species found by

Mr. Bates on the Amazons. The first of the two species now recorded is one of Mr. Champion's most interesting discoveries in this family.

1. **Pyticera championi.** (Tab. IX. fig. 10.)

Flavo-testacea, subnitida, subtiliter pubescens; capite, antennis, tibiis, tarsis elytrisque postice nigro-fumosis, abdomine piceo. Long. 9–10 millim.

Hab. GUATEMALA, San Gerónimo (*Champion*).

The intermediate joints of the antennæ are together about equal in length to the basal joint; the first of the three terminal ones equals all preceding it; and the two following are successively longer, so that the whole antenna is more than half the body's length. The palpi are all hatchet-shaped at the tips; but the terminal joints are not widely triangular, but only a little expanded. They are yellow, excepting the apical joints. The mandibles are acutely toothed, pitchy, the head being a little flavous about their bases. The thorax is almost smooth, but not very shining; the sides are nearly straight, fringed with soft yellow hairs. The elytra are yellow at their base, this colour extending down the margins and suture, while the black of the apical half extends indefinitely up their centre. They are closely and obsoletely punctured; their lateral margins rather expanded. The metasternum and abdomen are pitchy and shining, paler at their margins.

Five specimens are all Mr. Champion has sent of this novelty.

2. **Pyticera militaris.**

Pelonium militare, Chevr. Rev. et Mag. Zool. 1874, p. 73 [1].
Enoplium humerale, Horn, Trans. Amer. Ent. Soc. 1867, p. 135 [2].

Hab. UNITED STATES, New Mexico [2].—MEXICO, Jolos [1] (*Sallé*).

The very short funiculus, apparently ten-jointed antennæ, and absence of lateral tubercles to the thorax, bring this better into the present genus than into *Pelonium.* It is not an *Enoplium,* for four joints of the tarsi are easily seen from above; and I think it better not to adopt Dr. Horn's name, because there is already a *Pelonium humerale,* Spin. The first two joints of the club of the antennæ have their inner sides produced into long rami, the branch being equal in length to the rest of the joint. It thus and in some other respects approaches *P. pilosum,* Forst.; but the shortened intermediate antennal joints render it even more difficult to retain it than that species in *Pelonium.* The type specimen in Sallé's collection, which has now passed into the possession of Messrs. Godman and Salvin, is the only one we have seen.

ORTHOPLEURA.

Orthopleura, Spinola, Mon. ii. p. 80; Lac. Gen. Col. iv. p. 482.

The antennæ are eleven-jointed, the intermediate joints shortened and hairy on their inner side; the body is cylindric, and the thorax is also cylindric but with margined

sides. This genus, therefore, is allied to *Ichnea* on one side, and to *Pyticera* and *Platynoptera* on the other. The tarsi are short, four-jointed, and the basal joint is not entirely hidden; the remark, therefore, in Lacordaire that it has the structure of the tarsi of *Enoplium* is based on an error. The type of *Orthopleura* is *O. damicornis*: with this Spinola has associated the European *O. sanguinicollis*; an examination of its antennæ, no less than of other parts, has satisfied me that it cannot properly be retained there. I therefore regard the genus as exclusively American. M. Chevrolat has described a species from Brazil; I have not seen it. The genus is only known to me from the northern continent.

1. Orthopleura damicornis.

Tillus damicornis, Fab. Ent. Syst. Supp. p. 117 [1]; Syst. El. i. p. 282.
Orthopleura damicornis, Spin. Mon. ii. p. 80 [2], t. 42. f. 4.
Orthopleura bimaculata, Melsh. Proc. Ac. Phil. ii. p. 307 [3].
Orthopleura punctatissima, Chevr. An. Soc. Ent. Fr. 1843, p. 34 [4].
Enoplium thoracicum, Say, Journ. Ac. Phil. iii. p. 188 [5]; Am. Ent. iii. t. 41.
Pelonium pennsylvanicum, Chevr. Rev. et Mag. Zool. 1874, p. 74 [6].

Hab. North America [1 2], Pennsylvania [3 4 5 6].—Mexico (*coll. Gorh.*).

2. Orthopleura suturalis.

Orthopleura suturalis, Chevr. Rev. et Mag. Zool. 1874, p. 77 [1].

Hab. Mexico [1].

I have the type of this fine species before me; it is twelve millimetres in length, and is more shining, being less pubescent, than any of the other species. It is pitchy black above, rufous beneath, and with the legs, the base of the antennæ, the suture broadly, and a narrow arcuate fascia behind the middle pitchy red. The antennæ are less hairy than in other species; but the elongate third joint and the short tarsi are characteristic of the genus. The type is the only specimen I have seen.

3. Orthopleura binotata.

Densius pubescens, nigra, capite prothoraceque rufis, hoc lateribus maculisque duabus basalibus, illo palpis, mandibulis et antennis nigris. Long. $3\frac{1}{2}$–9 millim.

Hab. Mexico, Juquila (*Boucard, coll. Sallé*); Guatemala, Pantaleon, Zapote (*Champion*).

Head rufous in the middle above and beneath, black at the sides. Thorax with shining yellow pubescence, conspicuous in three lines, one on each side and one in the middle; punctuation hardly visible, very fine and hidden by the pubescence. Elytra much less shining than in *O. damicornis*: in the example from Juquila there is a very faint trace of the transverse fascia; but they are dull black, without any fascia in the other examples.

The one from Pantaleon is so very small that it seems difficult to connect it with the same species. I do not think this insect is the same as the species from Cuba which Chevrolat regards as the *O. bimaculata* of Melsheimer. It is, at any rate, distinct from *O. damicornis*, and is very much more pubescent.

4. **Orthopleura purpurea.** (Tab. IX. fig. 17.)

Rubra, pube micante vestita ; antennis, palpis, thoracis lateribus, pedibus et abdomine nigris. Long. 5–10 millim.

Hab. Guatemala, Chacoj (*Champion*).

The specimens taken at this locality, nine in number, all agree in presenting a very distinct form of coloration. This species is no doubt very closely allied to *O. binotata*; but there are no connecting forms, and I believe it will prove distinct. The antennæ are nearly twice as long as the head and thorax. The thorax is indistinctly carinate, and with an obsolete tubercle behind. The pubescence is velvety and shining, disposed in three lines on the thorax. The species of this genus vary very much in size, probably not so much in colour.

5. **Orthopleura ichnoides.**

Platynoptera ichnoides, Chevr. Rev. et Mag. 1874, p. 73[1].

Hab. Mexico, Cordova [1] (*Sallé*).

It is odd that the affinities of this insect did not strike M. Chevrolat; but it is nevertheless a veritable *Orthopleura*. The antennæ are longer than usual; and the thorax has two black lines in addition to the sides being black in the normal manner.

Two specimens are all that were in Sallé's collection when it was acquired by the editors.

6. **Orthopleura teneroides.**

Oblonga, subcylindrica, nigra, subopaca, capite obscure rufo, prothorace rufo, vitta mediana integra lateribusque ad angulos anticos nigris. Long. 7–11 millim.

Hab. Panama, Bugaba, Volcan de Chiriqui (*Champion*).

The smaller specimens of this species, probably the males, are much narrower than the larger ones, which also have the ventral apical segment elongate spathulate. The head is obscurely red between the eyes. The thorax is clothed with sericeous hairs, which are red on the rufous portion; the sides beneath and a rather wide vitta extending from the front to the hind margin are black. The elytra are distinctly punctured, the punctures being close, very irregular in shape, and the interspaces dull. The antennæ are of ordinary length; the intermediate joints as in *O. purpurea* &c., set with strong tufts of black hairs, and the three terminal joints about equal in length to the basal part.

Five specimens from Bugaba, one from Chiriqui.

CHARIESSA.

Chariessa, Perty, Del. An. Art. Bras. p. 109; Lac. Gen. Col. iv. p. 478; Gorh. Trans. Ent. Soc. 1877, p. 417.
Brachymorphus, Chevr. Col. Mex. Cent. ii. no. 150.

Only four species can, I think, be properly retained in this genus; they are very closely related to *Pelonia*, but with an unusually dilated form. One species (*ramicornis*) is found in Brazil and mimics a Phytophagous insect of the genus *Cœlomera*; the others are North American.

1. Chariessa vestita.

Brachymorphus vestitus, Chevr. Col. Mex. Cent. ii. no. 150[1].
Chariessa vestita, Klug, Mon. p. 363, t. 1. f. 10; Spin. Mon. ii. p. 88[2], t. 45. f. 2.

Hab. Mexico, Toxpam [1], Cordova (*Sallé*), Paso del Macho (*Höge*); Guatemala, El Reposo, Rio Maria Linda (*Champion*); Nicaragua, Chontales (*Belt*, *Janson*).—South America, Brazil [2].

A well-known beautiful insect, but apparently rare. Two of the examples from Chontales have the body above and the elytra obscurely reddish instead of violet, and seem to be more densely clothed with woolly pubescence. These possibly correspond to the var. A of Spinola. I have not seen specimens from South America myself; but as this insect has such a wide range north of the isthmus, it may, of course, occur there.

PELONIUM.

Pelonium, Spinola, Mon. i. p. 347; Lac. Gen. Col. iv. p. 479; Gorh. Trans. Ent. Soc. 1877, p. 417.
Lasiodera, Gray, Griff. An. K. Ins. t. 48.
Philhyra, Cast. Silber. Rev. Ent. iv. p. 53.
Enoplium auctorum; *Lampyris*, Forster.

This is an extensive genus, composed of somewhat variable elements, but having strong natural affinities, which it would be difficult to keep distinct. It embraces, broadly speaking, those members of the Cleridæ which have the tarsi apparently four-jointed, the antennæ ten- or eleven-jointed, terminated by a three-jointed serrate club, the intermediate joints being all distinct and not hairy on their inner edges. Thus taken, it is a genus rich in species in equatorial North and South America, with a few aberrant species passing the tropical limits in both continents. Species very closely representing this genus occur in New Zealand, and in other parts of the world, as Laos, from which country a species (*extraneum*, Gorh.) is hardly distinguishable, and has been referred to it. Of true *Pelonia*, *i. e.* of American species, about eighty are described, only three of which have been recorded from Central America. The districts of Panama and Costa Rica, however, are probably not less rich in species, in proportion to their areas, than South America.

1. **Pelonium stenochioides.**

Pelonium stenochioides, Chevr. Rev. et Mag. Zool. 1874, p. 74[1].

Hab. Mexico [1].

M. Chevrolat (Mémoire, p. 37) says this and his *P. semivittatum* are allied species. The latter=*P. helopioides*, Cast. I have not seen it.

2. **Pelonium nigroclavatum.**

Pelonium nigroclavatum, Chevr. loc. cit. p. 75 [1].

Hab. Mexico, Teapa in Yucatan [1] (*Pilate*).

Apparently not unlike the species which follows; Chevrolat compares it with his *piciventre* from Cuba described in the same paper.

3. **Pelonium notabile.**

Subparallelum, punctatum, rufo, piceo pallidoque variegatum; prothorace inæquali, tuberculis elevatioribus rufo-piceis, postice nigro-piceo; elytris unicostatis, pallidis, punctis piceis maculisque nigris adspersis, fascia irregulari ante apicem rufo-picea, ad suturam latiore, nigro marginata, apice subalbido lævi; antennis pallidis, articulorum penultimorum duorum apicibus et ultimi medio nigris; pedibus anticis nigro-piceis, basi tarsisque fulvis, posticis et intermediis pallidis, geniculis tibiisque externe nigro tinctis. Long. 8–9 millim.

Hab. Panama, Bugaba (*Champion*).

A beautiful species, but difficult to describe: it reminds one of *P. scoparium*, Klug; but its surface is more uneven, and its colours are different. The head is pitchy black in front, rufous behind, with two darker lines, one from each eye to the base; it is sparingly but distinctly punctured behind; the eyes are coarsely granulate, the antennæ rather longer than head and thorax, the club equal to basal portion, last two joints but one triangular. The thorax is longer than wide, with a central short sulcus, and a pit on each side of the centre surrounded by rufous elevated but irregular and confluent tubercles; the sides are tubercularly widened. The elytra are very coarsely punctured, the punctures honeycomb the surface; the costa reaches the sub-apical fascia; the yellowish-white apical patch is unpunctured.

Four specimens are all that have been sent.

4. **Pelonium amœnum.**

Pelonium amœnum (Guérin), Spinola, Mon. i. p. 358 [1] ?
Pelonium fasciculatum, Spin. Atlas, t. 36. f. 3.

Hab. Panama, Bugaba (*Champion*).—South America [1], Brazil (*coll. Gorh.*), Magellan [1].

The identification is not certain; but the specimen from Brazil in my own collection is certainly the same as the single one collected by Champion. The apical joint of the antennæ is yellow. The thorax is smooth, with small lateral tubercles; the spots on

the thorax are more diffused and the hinder ones confluent; but in other respects this insect seems to agree with the figure.

5. **Pelonium amabile.** (Tab. IX. fig. 15.)

Pelonium amabile, Spin. i. p. 362[1], t. 33. f. 1; Chevr. Rev. et Mag. Zool. 1874, p. 26[2].

Hab. Panama, Volcan de Chiriqui (*Champion*).—South America, Colombia[1], Guiana, Cayenne, Brazil[2].

The scutellum, club of the antennæ (excepting the tip of the apical joint), and three joints preceding it are pitchy black. The elytra are vaguely and very obsoletely punctured.

Only one specimen was met with by Champion.

6. **Pelonium percomptum.**

Præcedente angustius; prothorace longiore, ad basin utrinque linea nigra; elytris pallidis, scutello concolori, fortiter striatim punctatis, singulis postice macula irregulari obliqua, versus apicem convergente, rufo-testacea nigro marginata ornatis; pedibus pallidis, geniculis, femoribus medio clavisque articulis apicibus nigro tinctis. Long. $8\frac{1}{2}$ millim.

Hab. Panama, Volcan de Chiriqui (*Champion*).

This species is a good deal like *P. amabile*, but differs in many respects, particularly in the large punctures of the basal part of the elytra (the apex from the posterior patch onwards is smooth) and in the form of the brownish-red patch behind: in *P. amabile* it is irregularly quadrate, common to both elytra; here it is separate on each elytron, though meeting near the apex, oblique, externally with two notches, the first forming a sinus. The apex of the antennæ is dark here, but pale in *P. amabile*.

A single specimen only, sent by Champion.

7. **Pelonium metallescens.** (Tab. IX. fig. 16).

Subdepressum, oblongum, elytris subparallelis; supra æneo-plumbeum micans, capitis fronte, prothoracis lateribus angustius pedibusque pallide flavis, his fusco variegatis, capite thoraceque profunde et rugose punctatis. Long. 6 millim.

Hab. Guatemala, Cerro Zunil (*Champion*).

Head testaceous, tips of the mandibles and of the palpi and crown pitchy; antennæ ten-jointed, of which the fourth and sixth joints are triangular and larger than the fifth, the seventh joint is small and almost quadrate, the three club-joints subequal. The thorax is pitchy above, with an impression on each side immediately above the tubercles (which are yellow); and there is an obsolete fossa on each side of the central line at the base. The elytra have very indistinct indications of striæ; they are shining with a brassy tint. The legs are very pale, with the knees, a spot in the middle of each tibia, and the tarsi clouded.

Three specimens from Cerro Zunil.

8. **Pelonium crinitum.**

Enoplium crinitum, Klug, Abhand. Ak. Berl. p. 369; Spinola, Mon. ii. p. 156, t. 33. f. 7.
Pelonium collare, Spin. Mon. ii. p. 364[1].

Hab. Panama, Bugaba (*Champion*).—South America, Cartagena [1], Brazil, Rio Janeiro (*Fry*).

The determination of small species of *Pelonium* is a matter of great difficulty; without a series of specimens it is impossible to know to what extent they may vary. There is only a single specimen of this among Champion's captures; and it varies from the species figured by Spinola in having the head red with a black vitta on the crown; the thorax is black, marked with testaceous in front on each side and on the tubercles; and the elytra are narrower; the thorax also is longer. But I think it better to refer it with some doubt to this species, than to make a type of a doubtful specimen. *P. flavolimbatum* is another nearly allied species.

9. **Pelonium quadrisignatum.**

Pelonium quadrisignatum, Spin. Mon. i. p. 365[1], t. 33. f. 3.

Hab. Mexico, Cordova (*Sallé*); Guatemala, Chacoj, Chiacam, Volcan de Atitlan, Teleman, Zapote (*Champion*); British Honduras, Rio Sarstoon (*Blancaneaux*); Panama, Bugaba (*Champion*).—South America, Colombia [1].

Var.? Elytris linea basali juxta suturam maculaque lineari subapicali nigris.

Hab. Panama, Volcan de Chiriqui (*Champion*).

Very closely allied to *P. humerale*, Spin., which, however, has the *apex* of the elytra black, whereas in this species the spot is subapical and separated at the suture and indented on the apical side. The antennæ in this and allied species are ten-jointed, a fact not noticed by Spinola or Lacordaire.

There is a closely allied species in Brazil, which has a shorter and much more finely punctured thorax. In the Bugaba specimen the humeral spot is wanting.

10. **Pelonium bilineicolle.** (Tab. IX. fig. 12.)

Pelonium bilineicolle, Chevr. Rev. et Mag. Zool. 1874, p. 76[1].

Hab. Mexico [1], Cordova, Toxpam (*Sallé*); Guatemala, Capetillo, Cerro Zunil, Panachel (*Champion*); Panama, David, Chiriqui (*Champion*).

Scarcely distinct from the preceding. The humeral spot is wanting, and the subapical one is reduced to an angulated fascia; the thorax has two lines or the disk entirely black; in some specimens the club of the antennæ is infuscate: but these trivial characters can scarcely be considered of specific value.

11. **Pelonium inscriptum.**

Ferrugineum, capite prothoraceque irregulariter nigro maculosis; elytris albescentibus, puncto subscutellari, fascia tenuissimi sinuata ante medium, et macula nitidissima subapicali per lineam uncinatam cum sutura conjuncta nigris, elytris parcius seriatim punctatis. Long. 5 millim.

Hab. Panama, Bugaba (*Champion*).

This charming little species is allied to the two last, but is amply distinct not merely in colour, but in having less-cylindric elytra, flattened on their upper surface as far as the second row of punctures, which causes the third interstice to appear costate; they are also very white, with a neatly marked black design, the subapical spot being rather metallic and very shining. The head and thorax (with the extreme base of the elytra) are ferruginous, thickly punctured, and with small tubercles on each side of the disk. The antennæ are yellow at the base, the club being fuscous. They are ten-jointed. The front pair of legs are black, with the bases and tips of the tibiæ and tarsi yellow; the two hinder pairs of legs are nearly wholly whitish yellow.

Three specimens were captured by Champion.

12. **Pelonium octonotatum.** (Tab. IX. fig. 13.)

Pelonio sexnotato affine, sed minus, ferrugineum; prothorace crebre fortiter punctato; elytris obovatis maculis duabus basalibus et duabus alteris in singulis, medianis, oblique dispositis, nigris, pone medium seriatim punctatis, punctis majoribus et minoribus sæpe confluentibus. Long. 6–6½ millim.

Hab. Panama, Volcan de Chiriqui (*Champion*).

The colour of this species is entirely rich rusty red, with the exception of the eight black dots, four on each elytron. The antennæ are of the same length as in *P. sexnotatum*; they are eleven-jointed, third, fourth, fifth joints subequal, fusiform, hardly widened at all on their inner sides; sixth and seventh joints shorter; eighth shorter still, but quite distinct. The thorax is twice as long as wide, if the tubercles on the sides are not taken into account; the surface is very distinctly punctured, including the tubercles. The humeral spot on the elytra does not quite reach the base; the other is on the base; both are elongate, but not so linear as in *P. sexnotatum*, &c.; of the two middle spots those nearest the suture are placed rather further back than the lateral ones; the apical third is nearly smooth.

13. **Pelonium lineolatum.** (Tab. IX. fig. 14.)

Elongatum, subparallelum, nigro-fuscum; capite (fronte excepta) prothoraceque ferrugineis, hoc macula oblonga utrinque nigra; elytris punctato-striatis, fuscis, sutura margineque testaceis; pedibus pallidis, anticorum femoribus apice, tibiis tarsisque, posticorum tibiis apice et tarsis nigris. Long. 7 millim.

Hab. Guatemala, Capetillo, Cerro Zunil, Las Mercedes, Volcan de Atitlan (*Champion*).

Head thickly and deeply punctate, tips of the mandibles and front above the mouth blackish; antennæ black, ten-jointed, the fourth and sixth joints rather more angularly widened internally and larger than the other intermediate joints, the club equal in

length to the basal part. Thorax angularly widened at sides, tubercles not very evident, thickly and finely punctured, the front and base, underside, and a line down the middle pale yellow. Elytra rather cylindric and parallel, deeply punctured in series, the interstices rugose; fuscous, with pale suture and margins, not, however, margined at the base. The legs are quite pale, the front pair with black apices to the femora, tibiæ, and tarsi, the two hind pairs with the tips of tibiæ and tarsi alone black.

This insect reminds one of *Ichnea vitticollis*, Gorh. [Trans. Ent. Soc. 1877, p. 415], but is quite differently punctured, besides the difference in structure from that species.

There have been captured six examples, one of which from Capetillo is shown in the Plate.

Subfam. *CORYNETIDES*.

LEBASIELLA.

Lebasiella, Spinola, Mon. ii. p. 77; Lac. Gen. Col.
Enoplium, Klug, Abhand. Ak. Berl. 1842, p. 353.
Corynetes, White, Cleridæ, Cat. Brit. Mus. iv. 1849, p. 45.

Lebasiella is the New-World representative of the Palæarctic genera *Necrobia* and *Opetiopalpus*, from either of which it differs *inter alia* in having the eyes with a distinct sinus, the club of the antennæ less connate, and in the mode of puncturing of the elytra. Its range is extended over the northern continent to Pennsylvania, the peninsula of California, and the isle of Cuba, and in South America to Colombia. A species attributed to it from Chili is probably not congeneric. Six species are described.

1. **Lebasiella discolor.**

Enoplium discolor, Klug, Abhand. Ak. Berl. 1842, p. 353[1].

Hab. Mexico, Jalapa[1], Guanajuato (*Dugès, coll. Sallé*).

2. **Lebasiella pallipes.** (Tab. IX. fig. 25.)

Enoplium pallipes, Klug, loc. cit. p. 353[1].
Lebasiella pallipes, Lac. Gen. Col. iv. p. 489, nota.

Hab. Mexico, Jalapa[1], Guanajuato (*Dugès, coll. Sallé*), Juquila (*Boucard, coll. Sallé*), Tolotepec, Orizaba (*Sallé*), Cerro de Plumas (*Höge*).

The specimen figured is one from Cerro de Plumas.

3. **Lebasiella bisbinotata.** (Tab. IX. fig. 26.)

Flavo-testacea, nitida; prothorace crebre et subtiliter, elytris parcius et profunde punctatis; his maculis duabus subrotundatis, una humerali, altera pone medium, nigris; tarsis fuscis. Long. vix 3 millim.

Hab. Honduras (*coll. Sallé*).

Head yellow, the apex of the mandibles and of the palpi fuscous; the latter are awl-shaped, the maxillary pair rather acute; eyes with a distinct sinus; antennæ nearly as long as the head and thorax, with a three-jointed rather lax club. Thorax suborbiculate, the front margin straight, the sides and base continuously margined by a fine line, the disk shining, with short upright dusky hairs, and (as well as the head) covered with small but distinct punctures. Elytra much more sparingly and coarsely punctured, the punctures oblong; each with two roundish black spots.

A single specimen in Sallé's collection.

NECROBIA.

Necrobia, Latreille, Préc. Car. Gén. Ins. p. 35 (1796).

The two species of *Necrobia* which have occurred in Central America are truly cosmopolitan, being, as it is probable, transported through the medium of commerce. A few seem indigenous to Southern Europe and to Africa.

1. Necrobia ruficollis.

Dermestes ruficollis, Fabr. Ent. Syst. i. p. 230. 18.
Corynetes ruficollis, Fabr. Syst. El. i. p. 286.
Necrobia ruficollis, Latr. Hist. Nat. Crust. et Ins. p. 156, t. 9; Oliv. Ent. iv. no. 76, t. i. f. 3; Spin. Mon. ii. p. 103, t. 43. f. 6.

Hab. ORBIS TERRARUM.—MEXICO, Guanajuato (*Dugès, coll. Sallé*); BRITISH HONDURAS (*Blancaneaux*).

2. Necrobia rufipes.

Dermestes rufipes, Fabr. Ent. Syst. i. p. 230. 17.
Corynetes rufipes, Fabr. Syst. El. i. p. 286.
Necrobia rufipes, Oliv. Ent. iv. no. 76, t. i. f. 2; Spin. Mon. ii. p. 101, t. 42. f. 6.

Hab. ORBIS TERRARUM.—MEXICO, Presidio (*Forrer*), Guanajuato (*Dugès, coll. Sallé*), San Luis Potosi (*Dr. Palmer*), Vera Cruz, Cordova, Orizaba (*Sallé*); BRITISH HONDURAS, river Sarstoon (*Blancaneaux*); GUATEMALA, the city, San Gerónimo (*Champion*); PANAMA, Volcan de Chiriqui, Bugaba (*Champion*).

Var. Elytris ænescentibus.

Hab. MEXICO, Oaxaca (*Höge*).

As widely distributed and usually commoner than the preceding.

Fam. PTINIDÆ.

Subfam. *PTINIDES.*

The subfamily are distinguished by their simple antennæ, which are scarcely, if at all, serrate, and of which the three terminal joints are not very much longer than those preceding them. The thorax is more or less coarctate behind; and the head, though decumbent, is not sunk into it; a further distinction is seen in the difference in the form of the body in the sexes. Though widely distributed, this section is but poorly represented by indigenous forms in North America: of eleven species found in the United States, three are introduced species; and one (*Eucrada*) I should be disposed to place in the Anobiides. In Central America we have to the present time eight distinct species, apparently indigenous, yet still of the Palæarctic type. The species of *Hedobia* which has been recorded from Mexico is a *Trichodesma*. In South America they are even more restricted, being found (if we except two species of *Mezium*) only in Chili.

PTINUS.

Ptinus, Linnæus, Syst. Nat. i. pt. 2, p. 565 (1766).

Between seventy and eighty species of *Ptinus* are described, the great majority being from the warmer parts of Europe; but a few are found settled in Japan and the southern temperate zone.

1. **Ptinus latefasciatus.** (Tab. X. fig. 5.)

Subparallelus, brevis, nigro-piceus; antennis, tibiis tarsisque rufis; thorace tuberculis quatuor valde elevatis, nigro-pilosis, basi coarctata in medio fulvo-hirtella; elytris latis, oblongo-subquadratis, basi apiceque griseo-tomentosis, fascia lata mediana denudata picea, striato-punctata, antice posticeque per lineam dentatam determinata; scutello niveo. Long. 4 millim.

Hab. Mexico, Vera Cruz (*Sallé*); Guatemala, Cerro Zunil, Paso Antonio, Dueñas (*Champion*); Panama, David, Tolé (*Champion*).

This insect appears to be not unlike *P. italicus*, judging from the figure of that species in the French Annals accompanying M. Boieldieu's monograph. It is the largest species of those we have yet received from Central America; and the larger examples are about equal in size to large females of *P. fur*. The suture behind is pitchy red.

2. **Ptinus albipunctum.**

Nigro-piceus, oblongus; capite latiore; thorace tuberculis quatuor, intermediis valde, lateralibus parum elevatis, postice valde coarctato; elytris parallelis, punctis sex niveis, duobus ante medium juxta suturam, duobus

pone medium magis approximatis, duobus transversis paulo post hæc majoribus inter suturam et marginem æquidistantibus. Thorax in medio pilis nigris, elytra pilis nigris brunneisque obsita. Long. $2\frac{1}{2}$–3 millim. ♂ ♀.

Mas. Antennis quam corpus longioribus ; oculis magnis, subglobosis.

Femina. Antennis corporis longitudine.

Hab. Panama, David, Tolé (*Champion*).

The general colour of this insect is pitchy brown; but it is much varied with greyish white and brown pubescence. The breast, especially at the sides, is thickly clothed with white depressed hairs. The prominence of the eyes in the male reminds one of *Xylophilus*. The two middle tubercles on the thorax are very close, and when viewed sideways appear as one; there are usually a few white hairs at the base of each on the outside. The elytra have longer and shorter upright hairs and six white spots of depressed scales, the four anterior being nearer to the suture than the two subapical larger ones are.

A series of specimens of equal number of both sexes of this species were taken by Champion at David, Chiriqui. I have only yet seen a single specimen from Tolé.

3. **Ptinus coarctatus.**

Oblongus, fuscus ; thorace ad basin disci carinulis tribus parum elevatis, postice valde coarctato ; elytris fuscis profunde punctato-striatis, pilis brunneis undique obsitis ; basi apiceque pube cinerea, antice lineas duas obliquas, postice in sutura litteram x formante vestitis. Long. 3 millim. ♂ ♀.

Mas. Oculis majoribus subglobosis, quam thorax latioribus.

Hab. Mexico, Cerro de Plumas (*Höge*); Guatemala, San Gerónimo, Capetillo, Dueñas (*Champion*).

Allied to the preceding; differs in the thoracic carinæ, antennæ shorter in the male, absence of the white spots, &c.

Two specimens are all that have come under my notice from Mexico; but one from Capetillo in Guatemala may, I think, belong to the same species, and one from each of San Gerónimo and Dueñas must also, I think, be assigned to it.

4. **Ptinus lateralis.** (Tab. X. fig. 6.)

Oblongus, rufo-brunneus, pilosus ; capite, thorace, pedibus basi elytrisque plaga magna laterali suturam haud attingente nigro-fuscis ; thorace postice valde constricto ; elytris fortiter punctato-striatis. Long. 3 millim.

Hab. Guatemala, Calderas (*Champion*).

Head with the eyes very little wider than the widest part of the thorax, not very prominent, crown with a double tuft of pilose hairs. Thorax with the part in front of the constriction wider than long, below the constriction widened again at the base, clothed with coarse and irregular pile. Elytra denuded at the base for some way down the suture, with series of large squarish punctures similar to those in *P. coarctatus*.

Towards the termination of the brown plagia on each elytron is a transverse fine angular line forming a broad **V**. The suture behind is clothed with ashy hairs; and the apex of the elytra is rufous. A single specimen.

5. **Ptinus brunneus.**

Ptinus brunneus, Dufts. Fn. Aust. iii. p. 65 [1]; Boiel. Mon. p. 649 [2], t. 18. f. 24?

Hab. EUROPE, France, Sicily, Turkey [1 2]; NORTH AMERICA, United States [2].—GUATEMALA, Dueñas, El Tumbador (*Champion*).

The insect I refer to this species is so assigned with a good deal of doubt. While the two specimens agree with the description of *P. brunneus* in many points, they differ in being smaller than I should expect, being only two millimetres long; the male is narrower than the female; the four teeth of the thorax are scarcely observable, if present. Still I think it may prove to be the same as the United-States species. The pile, arranged in serial lines, is very conspicuous in the male from El Tumbador, and it agrees with the figure very well.

NIPTUS.

Niptus, Boieldieu, Mon. Ann. Fr. 1856, pp. 290 et 662.

The seven species of this genus from Europe and Asia Minor are separated from *Ptinus* on account of the body being ventricose in both sexes. Leconte has added one species from Kansas, with which I think the species here recorded is probably identical.

1. **Niptus ventriculus.**

Niptus ventriculus, Lec. Col. of Kansas, 1859, p. 13 [1].

Hab. NORTH AMERICA, Kansas [1].—MEXICO, Cordova (*Sallé*); GUATEMALA, Capetillo (*Champion*).

A single specimen in Sallé's collection and one taken by Mr. Champion seem to me to be possibly this species. In our insect the elytra have rows of large punctures not very close, and a scanty irregular pile somewhat serially disposed. The antennæ are rather short, with subquadrate intermediate joints, the two apical longer.

TRIGONOGENIUS.

Trigonogenius, Solier in Gay's Hist. de Chili, iv. p. 464 (1849).

The typical species of this genus are small globose insects, with the thorax not constricted behind, and are clothed rather with scales than with erect hairs. The species included in the genus in the Munich catalogue from the Atlantic islands were

separated by Wollaston under the name *Sphæricus*, which is synonymical with, but prior to, *Tipnus*, Jaq. Duval. There is, I think, no doubt these species should be kept separate. The species now described differ from typical *Trigonogenii* in being hairy; but their geographical range is not so far different as to make me think it would be otherwise than rash to separate them before I have had an opportunity of examining the Chilian type. In its hairy surface this insect presents some analogy to *Piotes*, Wollaston.

1. **Trigonogenius niveus.** (Tab. X. fig. 3, var. fig. 4.)

Ater, parce atripilosus; thoracis disco linea alba; elytris oblongo-subglobosis punctato-striatis, singulis fascia tenui baseos, scutello punctis duobus pone medium, et uno apicali niveo-squamosis, parvis; antennis corporis fere longitudine, articulis gradatim longioribus. Long. 2 millim.

Hab. Guatemala, Capetillo, Chacoj (*Champion*).

Var. elytris striga subhumerali, punctis duobus pone medium, margineque apicali tenuiter albis.

Hab. Panama, Volcan de Chiriqui (*Champion*).

Head with white scales; eyes not large nor prominent; antennæ eleven-jointed, inserted closely together; joints two to six longer than wide, subequal; joints seven and eight a little longer (these are pubescent with greyish hairs); joints nine, ten, and eleven rather longer, with black pubescence, the two subapical ones slightly serrate. The thorax is scarcely wider than long, rugulose, and densely covered with short irregular hairs; the base is a little constricted, and its margin reflexed. The elytra are a little shining, with rows of distinct deep punctures and long erect hairs. The underside of the body is very closely covered with white scales.

The specimens from which this description is taken are both from Capetillo, and may be males; they are smaller, have shorter antennæ, and rather more globose bodies than two others, which are those from which the figures in our Plate are taken. In one of these, that from Chacoj (fig. 3), the elytra have a subhumeral elongate spot with three others which are smaller—one nearer the margin (not appearing in the figure), two between the larger one and the scutellum. In the other, that from Chiriqui (fig. 4), the smaller spots are wanting; these are possibly the females of the same species. On so few specimens it is of course not possible to form a decided opinion, especially as they are from different localities; but it will certainly be better to consider them as such till the question can be settled. I take the Capetillo specimens as types.

PITNUS.

Corpus parvum, oblongo-subglobosum. Caput declivum. Antennæ novemarticulatæ, articulo summo claviformi. Thorax basi leviter constrictus, marginatus. Tarsi quinquearticulati.

The nine-jointed antennæ remove this minute species from any genus of Ptinidæ

except *Niptus*; and the singularly swelled apical joint, together with the deeply punctate elytra and five-jointed tarsi, seem to me to debar its being placed in the same genus with such insects as *N. gonospermi*.

1. **Pitnus pygmæus.** (Tab. X. fig. 8.)

Ater, capite prothoraceque subopacis; elytris subglobosis, profunde punctato-striatis, punctis majoribus subcrenatis; antennis articulo ultimo incrassato suborbiculari. Long. 1 millim.

Hab. Guatemala, Paraiso (*Champion*).

This is the smallest species of the family with which I am acquainted. The colour is totally black; the elytra have a few minute pilose hairs. The artist has drawn ten joints to the antennæ; they are, however, really nine-jointed. A single specimen is all that has yet been found.

Subfam. *ANOBIIDES*.

This section of the Ptinidæ is distinguished from the Ptinides by the more oblong form of the body, and by their being not of different forms in the sexes, as well as by the species having antennæ either serrate or with the three terminal joints enlarged or very much lengthened. Of this subfamily a great many new genera have lately been erected by authors. It is no doubt a more extensive one than the last and as widely distributed. Many new species have been recently described from Australia, New Zealand, and the Pacific islands. They are no doubt also well represented in both North and South America.

A monographic revision is now much to be desired. While some of the species have inquiline habits, like those of the Ptinides, many are truly xylophagous; one species has been recorded as infesting the galls of a *Cynips*.

PTILINUS.

Ptilinus, Geoffroy, Hist. Ins. Par. i. p. 64 (1762).

Twelve species of this genus are described. It appears to be of wide distribution: one species is described from California; and one has been recorded from Japan.

1. **Ptilinus,** sp.

Hab. Guatemala, El Tumbador (*Champion*).

Three species of *Ptilinus* are recorded in Crotch's Check-list of Coleoptera of America north of Mexico; and the single male specimen taken by Champion is very probably identical with one of them.

LASIODERMA.

Lasioderma, Stephens, Ill. Brit. Ent. v. p. 417 (1832).

The species of this genus are for the most part European; but two are recorded

from North America. The one noticed here has the habit of feeding upon ginger and other articles of commerce, and may probably have been introduced.

1. **Lasioderma serricorne.**

Ptinus serricornis, Fabr. Ent. Syst. i. p. 241; Syst. El. p. 326[1].
Pseudochina serricornis, Muls. Téréd. p. 175[2]; Lec. Prodr. p. 238[3].
Ptilinus testaceus, Dufts. Fn. Aust. iii. p. 46[4].
Xyletinus testaceus, Sturm, Fn. xi. p. 89[5], t. 237. f. P, Q.
Lasioderma testaceum, Steph. Ill. Brit. Ent. v. p. 417[6]; Kiesenw. Naturg. der Ins. Deuts. v. p. 150[7].

Hab. EUROPE, Hungary[4], Germany[7], England[6], Spain; NORTH AMERICA[1 3].—MEXICO, Vera Cruz (*coll. Sallé*).

I have only seen this in Sallé's collection. Its habits agree with the expression in Fabricius:—"*Habitat in Americæ plantis siccis.*"

TRICHODESMA.

Trichodesma, Leconte, Class. Col. N. Am. p. 204 (1861); Proc. Ac. Phil. 1865, p. 230.

Species of *Trichodesma* have only occurred at present in North America and Japan. Three species are described, including the species representing *Hedobia imperator* in Sallé's collection.

1. **Trichodesma imperator.** (Tab. X. fig. 9.)

Hedobia imperator, Cast. Silb. Rev. iv. p. 58[1].

Hab. MEXICO[1], Almolonga (*Höge*), Orizaba (*Sallé*); GUATEMALA, Dueñas, San Gerónimo, Cerro Zunil (*Champion*).

A specimen from Almolonga is figured.

2. **Trichodesma albina.** (Tab. X. fig. 10.)

Oblonga, nigra, pube depressa alba nigraque variegata, thorace conico-elevato maculis quatuor nigro-pilosis ornato; elytris albo-sericantibus, utrinque angulariter denudatis, creberrime punctato-sulcatis, punctis transversis; antennis ferrugineis. Long. 5 millim.

Hab. GUATEMALA, San Gerónimo (*Champion*).

Allied to *T. imperator*, distinguished from it by the close depressed rather sericeous white pubescence with which the thorax and elytra, with the exception of a few pilose tufts, and the lateral almost denuded patches, are invested. The head, which is quite sunk in the thorax, has the crown black and denuded; the thorax covers it like a hood; there are no hind angles; but what must be termed the front angles are more acutely produced than in *T. imperator*. On looking at the thorax from the front, on the summit of the cone which it forms, four black spots are seen, which leave a narrow white cross between them; on the denuded patches on the side three or four white pubescent dots are seen disposed in an angular band. Starting from the scutellum, the

white silky pubescence widens till it covers the apical third of the elytra. Posteriorly, near the suture, are two minute tubercles tipped with black hairs; and behind them are two not very conspicuous callosities. These four tubercular elevations are traceable in the species I regard as *T. imperator*; but there are in that species other squamose points which are not found here. The legs are blackish, with ashy hairs and silky grey pubescence. The antennæ, which in *T. imperator* are dark, are here rufous. Their structure is the same.

A single specimen has occurred.

3. **Trichodesma W-album.**

Griseo-pubescens, maculis pilosis nigris albisque variegata; antennis brevibus, ferrugineis, articulis tribus ultimis picescentibus; prothoracis dorso conico-elevato; elytris quam thorax duplo latioribus, macula communi suturali nigra, scutello et fascia mediana valde dentata in medium litteram W præbente albis. Long. $3\frac{1}{4}$ millim.

Hab. GUATEMALA, Sinanja valley (*Champion*).

Head covered with griseous pubescence; eyes prominent, subglobose, not so wide as the sides of the thorax; antennæ scarcely half as long as the body, rufous, the three terminal joints as long as the basal part, apical joint fusiform, longer than the ninth or tenth, but shorter than they taken together. Thorax densely covered with ashy and slightly variegated scales, its middle strongly conically raised and pilose; its width is not much more than half that of the elytra. The elytra are punctate striate; but their surface is but little visible. The white and black markings take the form of longitudinal streaks; the most conspicuous of the black are a round spot at the central apex of the W, and a smaller one at each of its lower angles; there is also a black square spot on the suture at the apex, preceded by two white ones. There is but a single specimen of this among the species collected by Champion in the Sinanja valley. It is of course possible that the white W may not always be so conspicuous as it is in this example.

4. **Trichodesma albistolata.** (Tab. X. fig. 7.)

Nigra, pilosa, cinereo-pubescens; thoracis disco elevato, lateribus et medio, scutello, elytrorum linea humerali fere ad apicem producta, punctoque lunulato pone medium communi cinereis; antennis nigro-fuscis, articulis tribus ultimis valde elongatis flabellatis. Long. $2\frac{1}{2}$ millim.

Hab. GUATEMALA, Panima, Chacoj (*Champion*).

Black, with a faint leaden tinge; thorax elevated into a cone, surmounted with black and grey pile, hiding the head, its sides and front and the tip of the cone with leaden-grey pubescence, the rest deep black, velvety. The form of the thorax and elytra and their punctuation are almost the same as those of the following species, from which it chiefly differs in the remarkable development of the three terminal joints of the antennæ. The first of these is alone as long as the preceding joints taken together;

the second, or subapical, is equal to it; and the terminal joint is rather longer. The disposition of the leaden-grey pubescence is also different from that of *T. plumbea*, and is precisely alike in the two examples; it is distinctly and uniformly placed, and does not appear due to denudation. It is of course not to be overlooked that this may prove to be the male of the following species. There being an example of each from Panima favours that supposition. On the other hand the difference in the colour of the antennæ and the appearance of the pubescence seem to indicate a separate species. The antennæ in *T. albistolata*, of which there are only two examples, are not extended, but appear to be eleven-jointed; and the third joint appears to me longer than those succeeding it to the ninth, these joints being very short, not transverse, but bead-shaped.

The specimen figured is the one from Chacoj.

5. **Trichodesma plumbea.**

Nigra, plumbeo-pubescens; antennis ferrugineis; elytris macula magna communi subbasilari denudata, alteraque minore pone medium nigro-pilosis; thoracis disco posterius conico-elevato. Long. 3 millim.

Hab. GUATEMALA, Panima (*Champion*).

In size and form very nearly allied to *T. W-album*; the thorax, however, is wider, and its raised cone is not surmounted by a tuft of hairs; the pubescence of the elytra is more silky; there is a fine sparse almost black pile varying in length.

The striæ and their large punctures are quite distinct. The legs and underside are clothed with leaden-grey pubescence.

Two specimens, agreeing very closely, have been sent. It is possible that this is the female of *T. albistolata*, as has been already remarked under that species; but if so, it can hardly remain in this genus.

ANOBIUM.

Anobium, Fabricius, Syst. Ent. p. 62 (1775).

Anobium is strictly an Old-world genus. Species have been described from other parts of the world; but it will probably be found that these, for the most part, require generic distinction. One or two species, however, are carried about with commerce; such is the case with one of the species we record here.

1. **Anobium sericatum.**

Anobium sericatum, Waltl, Faun. i. 1832, p. 167[1].

Hab. MEXICO[1]; GUATEMALA, Cerro Zunil (*Champion*).

A single specimen doubtfully assigned to this species, of which I have not seen authentic types.

2. **Anobium paniceum.**

Anobium paniceum, Linn. Fn. Suec. 1761, p. 145; Panz. Fn. Germ. p. 46. 6; Muls. Ann. Soc. Linn. Lyon, x. 1863, p. 82; Thoms. Skand. Col. v. p. 166.
Anobium obesum, Melsh. Proc. Ac. Phil. ii. p. 309[1].
Anobium tenuistriatum, Say, Journ. Ac. Phil. v. p. 173[2].

Hab. EUROPE; NORTH AMERICA[1 2].—MEXICO, Cordova, Puebla (*Sallé*).

Found feeding on various substances, and carried about with commerce. It can hardly be considered indigenous.

MICRANOBIUM.

Corpus parvum. Caput declivum in thoracem haud profunde receptum. Antennæ 11-articulatæ, articulis tribus ultimis elongatis, clavam laxe formantibus, tertio quam secundus longiore, 4° ad 8^m^ fusiformibus. Oculi fortiter granulati. Tarsi distincte 5-articulati, articulo quarto valde bilobo. Abdominis segmentum secundum longitudine tribus apicalibus æquale.

The little Anobiads for which I propose this generic name are of two types—one resembling a small *Cis*; the other is rather more closely like a very small *Anobium striatum*. They agree very nearly in their structural details; and the length of the second ventral segment of the abdomen seems to me a very important character common to both of them. The first segment is very short, with a broad intercoxal process. The tarsi are long, and could not be received into the tibiæ; but the legs themselves in repose are very closely retracted.

1. **Micranobium exiguum.**

Piceum, subnitidum, breviter sat dense pubescens, subcylindricum, antennis pedibusque ferrugineis, oculis prominulis. Long. 1–1½ millim.

Hab. GUATEMALA, San Gerónimo (*Champion*).

Pitchy or rufous-brown above, darker beneath; the head, thorax, and elytra are clothed with a short depressed yellow pubescence. The eyes are prominent, and the head is exserted. The thorax is not longer than wide; its margins are a very little expanded; dark pitchy brown, and sometimes rufous in front. The elytra usually lighter in colour than the head and thorax, impunctate, and without striæ, of the same width as the thorax. The femora are dark, pitchy; the tibiæ and tarsi rufous. The three terminal joints of the antennæ are dark; they are not very long, but form a lax club not equal in length to the basal portion.

2. **Micranobium pulicarium.** (Tab. X. fig. 14.)

Nigrum, opacum, elytris striatis parum nitidis, prothorace antice angusto compressoque, lateribus paululum explanatis; antennis pedibusque rufis. Long. 1½–2 millim.

Hab. GUATEMALA, Dueñas, San Gerónimo, Balheu, Capetillo (*Champion*).

The thorax in this species is much compressed in front and elevated over the head, with its front margin reflexed, and its lateral margins much sinuate. The base is also slightly sinuous. The scutellum is minute. The elytra are punctate-striate, the striæ not deeply impressed, except at the outer margin near the apex. The underside is closely punctured. Some specimens are reddish brown, perhaps when less matured. Many specimens of this occurred to Champion, especially at Dueñas.

LIOOLIUS.

Corpus breve, ovato-subquadratum, *Dorcatomam* quasi simulans. Caput receptum. Antennæ 11-articulatæ ut in *Thaptore*, at paullo breviores. Thorax elytrorum latitudine ad basin, antice angustatus, angulis anticis reflexis, prosterno mesosternoque minutis, vix inter coxas elevatis.

This is a genus of Dorcatomini allied to *Thaptor*, but with the short form and black or blue-black colour of *Dorcatoma*. The antennæ are formed nearly as in *Thaptor*, but are very short; their first joint is stout and curved; the second not longer than wide, a little produced internally; the third obconic, longer than wide; the fourth to eighth very short, transverse, the fourth and fifth oblique. All the limbs and the antennæ are closely retracted in repose. The abdomen consists of five segments, of which the first is very short, produced between the hind coxæ, and not reaching the sides. The general remarks on the genus *Thaptor* are equally applicable here.

1. **Lioolius punctatus.** (Tab. X. fig. 15.)

Nigro-cyaneus, nitidus, thorace crebre distincte punctato, capite rufo-piceo subtiliter dense punctato; elytris seriatim interstitiis parcius punctatis; antennis pedibusque rufis. Long. $2\frac{1}{2}$–3 millim.

Hab. Honduras (*Sallé coll.*); Panama, David, Chiriqui (*Champion*).

This is a very distinct species, its size and steel-blue colour with a rufous head separating it from the other species yet known. The elytra have a double submarginal stria, the inner one being very deep, but not reaching the suture behind; and both it and the outer one vanishing towards the middle of the elytra beneath the shoulder. The callus is tubercularly elevated and smooth. The margin of the elytra at the apex is rufous. The punctuation, though fine, is very distinct, and nowhere confluent or confused; that of the underside is distinct. The antennæ are pale rusty red, reaching to about the middle of the metasternum.

Three specimens in Sallé's collection, and one from Chiriqui, which is the one from which the figure is taken.

2. **Lioolius glaber.**

Brevis, oblongo-ovatus, niger, nitidus, fere glaber; antennis pedibusque rufis; elytrorum margine postico

reflexo, haud striato; prothoracis angulis anticis et metasterno externe confertim punctatis, hoc medio glabro. Long. 1–3 millim.

Hab. GUATEMALA, Capetillo, Dueñas, San Gerónimo (*Champion*).

This species is wholly shining black, almost impunctate, and without the double stria near the margin in the apical half of the elytra; but there is a kind of smooth sulcus in the same part. The head is smooth, much retracted into the thorax; the eyes are oval, not convex, and but of medium coarseness, neither very fine nor coarse in the facets. The antennæ arise from very close to their inner margins in front; their basal joint is broad, the three apical joints equal to all the preceding ones taken together; of these the last two are subquadrate; the ninth equal to them, its base and apical edge oblique, but it is not angular internally.

The variation in size affords some doubt as to all the specimens I have included under this name being properly referred to one species. The characters of the genus and of the species are drawn from examples from Dueñas and Capetillo; these are 2 millim. in length, and quite black. One from San Gerónimo is 3 millim., and has the head rufous as in *L. punctatus*.

3. **Lioolius striatus.**

Oblongo-ovatus lateribus parallelis, niger, nitidus; elytris tenuiter striatis, striis minutissime punctatis, ad latera striis gemellatis, interstitiis crebrius punctatis, margine apicali vix reflexo aut sulcato. Long. 2 millim.

Hab. NICARAGUA, Chontales (*Janson*).

I have felt some hesitation in separating these from *L. glaber*; yet it is scarcely possible to place them together, for the differences, though minute, are constant. The elytra are distinctly striate and quite thickly punctate at the sides, although this sculpture is so fine as hardly to be seen without a very strong lens or the microscope. At the same time the appendages are all darker pitchy red, and the sulcate groove of the apical margin is all but gone.

4. **Lioolius pubescens.**

Oblongo-ovatus lateribus subparallelis, breviter pubescens, brunneus, elytris minutissime punctatis, striis perobsoletis. Long. 2 millim.

Hab. GUATEMALA, San Juan in Vera Paz (*Champion*); PANAMA, David (*Champion*).

Immediately distinguished from the three species preceding by the surface being covered with a fine, close, depressed pubescence, and by its brown colour, which gives it very much the appearance of a *Cathorama*, more particularly that of the species described here as *C. seminulum*. It is, however (in addition to the structure of the antennæ), more ovate; the base of the thorax is more distinctly produced in its middle;

the scutellum is more distinct. Striæ or punctures are not to be seen; but the surface appears alutaceous between the pubescence, where it is visible. I have only found two specimens as yet of this insect.

5. **Lioolius ovulum.**

Ovatus, nitidus, parce pubescens, subtiliter crebrius punctatus, haud striatus, rufo-piceus. Long. 1–1½ millim.

Hab. NICARAGUA, Chontales (*Janson*); PANAMA, Volcan de Chiriqui (*Champion*).

The distinguishing characters of this species are its small size, which is scarcely more than 1 millim., the total absence of any punctured striæ, although under a very strong lens, with a magnifying-power of 60 to 80, numerous flat-bottomed punctures are evident. In two examples from Chontales the whole insect is covered with brown pubescence; in one of these the two terminal joints of the antennæ are as wide and, taken together, as long as the one preceding them, while in the other examples they are narrower. I think this is very probably a sexual character. One example from Chontales is entirely free from pubescence; but this may be owing to greater maturity. I have only found four examples in all which I can with any confidence unite under this description.

THAPTOR.

Corpus oblongum ovale, antice et postice angustatum. Caput in thoracem receptum; antennæ 10-articulatæ, articulo primo magno basi latissima, 2° late suborbiculari, 3° obconico, 4° ad 7^m^ transversis, 5° et 7° interne admodum ampliatis, 8° elongato, 9° et 10° subquadratis clavum formantibus. Thorax antice fortiter angustatus, prosterno minuto minute bifurcato. Mesosternum minutum; metasternum antice in medio productum, bimucronatum. Pedes recepti, femoribus subcompressis carinatis, tarsis brevibus.

The three species of this new genus agree very closely; the most remarkable feature is the structure of the club of the antennæ, of which the first joint is as long as the two succeeding it; and these two are more closely connected than they are with the first, so that at first sight the club appears two-jointed. The extreme reduction of the mesosternum is only a character which they possess in common with other genera of the Dorcatomini here noticed, but which has not received the attention due to it. It is by this reduction of its outward surface that the front and intermediate coxæ are brought into juxtaposition, the front edge of the metasternum and the hinder edge of the side pieces of the pronotum forming a groove between them, into which their coxæ are received in repose. The first segment of the abdomen is so short, and so much excavated for the reception of the hinder coxæ and femora when folded upon them, that it only appears as a wide triangular piece between these coxæ. The elytra present a single deep stria at the apical half of the margin.

1. **Thaptor pupatus.** (Tab. X. fig. 11.)

Oblongo-ovatus prothorace antice attenuato, nigro-brunneus, brevissime cinere-pubescens, elytris stria apicali submarginali antice abbreviata. Long. 4 millim.

Hab. Mexico, Cordova, Oaxaca (*Sallé*); British Honduras, river Sarstoon (*Blancaneaux*); Guatemala, Calderas, Dueñas, Zapote, Purula (*Champion*); Costa Rica, Cache (*Rogers*).

This singular-looking insect is of a dull uniform dark-brown colour, without striation or punctures, with the exception of the short stria close to the margin near the apex, and in some examples very faint indications of two or three striæ just above the pleural sinuation of the elytra. Its contractile power is very great, the appendages being all neatly packed away in repose, so that the insect when laid on its back resembles a pupa. The mesosternum is visible only as a small round point in the bifurcate projection of the metasternum. The species appears very common; a specimen from Capetillo is figured.

2. **Thaptor throscoides.** (Tab. X. fig. 12.)

T. pupato summa affinitate at minor, brunneus vel nigro-brunneus; elytris ad apicem plerumque stria duplici abbreviata. Long. 3–3$\frac{1}{4}$ millim.

Hab. British Honduras, river Sarstoon (*Blancaneaux*); Guatemala, near the city (*Salvin*), Aceytuno, Capetillo, Dueñas, Zapote, Purula (*Champion*).

This is perhaps only a small form of the preceding species, which I take for the type of the genus; but the two series of specimens are tolerably constant in size among themselves, so that connecting links are wanting to confirm the idea that they form but one species.

A Capetillo specimen is figured.

3. **Thaptor oblongus.**

T. pupato iterum affinis, oblongus, lateribus subparallelis; thorace antice angustato; elytris stria submarginali antice obsoleta, infra humerum duplicata. Long. 4–5 millim.

Hab. Mexico, Cordova (*Sallé*), Guanajuato (*Dugès, coll. Sallé*), Saltillo, Coahuila (*Dr. Palmer*).

Very obsoletely pubescent, only the very shortest silky hairs being visible; the elytra and whole upper surface are free from punctuation, and only very faint indications of striæ are to be observed. The lateral stria, however, is continued nearly the whole length of the side, but becomes very faint near the sinuate edge of the widened part of the margin; above this part and near the base one or two other obsolete striæ may be seen. This insect has very much the appearance of a true *Anobium*; the reduction of the mesosternum and the structure of the antennæ prove it to belong to the present genus. There are four specimens of this species in Sallé's collection; and I have seen four taken by Dr. Palmer which agree with them. Its more parallel form and the difference in the marginal striæ will prevent its being confused with *T. pupatus*, which it at first sight very closely resembles.

CATHORAMA.

Catorama, Guérin, Rev. Zool. 1850, p. 431.
Tricorynus, Waterh. Trans. Ent. Soc. Lond. v. p. 68 (1849).

Six species of this genus have been described, with one exception from the West-India Islands, the other one being from the United States of North America. The club of the antennæ is simply formed; that is to say, the three terminal joints are nearly equal in length; but they are ten-jointed.

1. **Cathorama palmarum.**

Catorama palmarum, Guérin, Ann. Soc. Ent. Fr. 1851, Bull. p. 115[1]; Lac. Gen. Atlas, t. 47. f. 3; Candèze, Mém. Liége, 1861, p. 362, t. 3. f. 7.

Hab. Mexico, Oaxaca (*Boucard, coll. Sallé*), Guanajuato (*Dugès, coll. Sallé*), Cordova (*Sallé*); Guatemala, San Gerónimo (*Champion*).—Haiti[1].

2. **Cathorama herbarium.**

Catorama herbarium (Chev. coll. Sallé).

Breviter oblongum, piceum, sericeum; elytris subtilissime punctato-striatis, punctis gemellatis, stria submarginali duplici, antice obsoleta; subtus, cum antennis, palpis et ore, dilutius rufo-piceum. Long. 3–3¼ millim.

Hab. Mexico, Cordova (*Sallé*); Nicaragua, Chontales (*Janson*); Panama, Volcan de Chiriqui (*Champion*).

This species is very closely allied to *C. palmarum*, but is considerably smaller and usually of a lighter pitchy colour; and in addition to these differences the elytra are distinctly gemellate-punctate in series. The punctures are very small, faintly impressed, and irregular in places, obliterated near the base. The stria nearest the margin starts from an elongate fossa beneath the callus, the one above it from near the callus itself; they are very faintly punctured. In the Chontales specimens this sculpture is confused near the shoulder; the specimens from there are also smaller on the average than the Mexican ones.

3. **Cathorama seminulum.** (Tab. X. fig. 13.)

Breviter oblongum, nigro-piceum, subtiliter sericeum, elytris vix punctato-striatis, striolis duabus antice abbreviatis submarginalibus; antennis, palpis pedibusque rufo-piceis. Long. 2–2½ millim.

Hab. Guatemala, near the city (*Salvin*), Capetillo, Dueñas, Zapote, Guatemala city, Cerro Zunil, Aceituno, San Joaquin, Purula (*Champion*); Nicaragua, Chontales (*Janson*).

There is in our collection a very considerable series of specimens, which, though varying a little in size and colour, we are disposed to unite under one specific name. These are generally darker in colour than *C. herbarium* and smaller; but the characters

which are most trustworthy are the absence of any groove or fossa below the callus, the shorter submarginal striæ, which do not commence till the middle of the margin, and the generally uniform aspect of the punctuation. When the silky pubescence is quite removed, sometimes very faint indications of the gemellate striæ may be seen. In the specimens from Dueñas, which I take as the types, the front of the head and the underside are densely squamose, with white hair-like scales; but this is not the case in some other examples, from which I conclude this is easily rubbed off during life. This little insect when its limbs are retracted must closely resemble a small black seed. It about the size of, and not unlike the European *Dorcatoma flavicornis*. There is only one example labelled "Chontales," most of the specimens from that locality being referable to *C. herbarium*.

The example figured is one from Dueñas.

DORCATOMA.

Dorcatoma, Herbst, Käfer, iv. p. 103.
Cœnocara, Thoms. Scand. Col. v. p. 174.
Enneatoma, Muls. et Rey, Téréd. p. 367.
Anitys, Thoms. Scand. Col. v. p. 175.

I have taken *Dorcatoma* in its more extended sense, the subdivisions represented by the synonymy above being based for the most part upon the reduction of joints in the antennæ from ten to eight. Our Central-American species on this view would require at least one new genus; for we have an eleven-jointed species, but the eight-jointed species are not similar to *Anitys*, or indeed to any European species. About a dozen species of *Dorcatoma* are known: three occur in North America, two in Japan, one in South Africa; the remainder are European. The power of retracting the limbs is very perfect. The species occur in rotten wood, in the puff-ball (*Lycoperdon*), and (*Anitys*) in the oozing sappy "frass" which exudes from wounds in oak trees.

Section A. *Antennæ eleven-jointed.*

1. **Dorcatoma tomentosa.** (Tab. X. fig. 16.)

Subhemisphærica, valde convexa, dense breviter cinereo-pubescens, macula denudata rotunda circa scutellum antennis pedibusque testaceis. Long. 3–3½ millim.

Hab. Guatemala, San Gerónimo, Cerro Zunil (*Champion*).

The head in this species is transverse; the eyes widely separated and finely granulated. The antennæ, although eleven-jointed, are formed as in typical *Dorcatomæ*, the basal joint being large and wide and a little curved; the second is triangular, the third to the eighth very short and together not longer than the following joint, which is widely and angularly developed on its inner side, the apical margin being a little

emarginate; the tenth is longer and less wide, the eleventh fusiform. The elytra are very finely and closely punctured, and with very fine strigæ or scratches, with some finely impressed striæ; these can of course only be seen where the elytra are denuded, which is the case in the specimen from Cerro Zunil. Three submarginal striæ, however, are easily observed. The pubescence is shining and horny; it is especially dense on the front and sides of the prothorax.

A specimen from San Gerónimo is figured.

Section B. *Antennæ ten-jointed.*

2. **Dorcatoma quadrimaculata.** (Tab. X. fig. 17.)

Piceo-nigra, nitida, antennis pedibusque picescentibus; elytris striato-punctatis, singulis maculis duabus, haud bene determinatis, rufo-testaceis. Long. 2 millim.

Hab. GUATEMALA, Las Mercedes (*Champion*); PANAMA, David (*Champion*).

Short, oblong, very convex, almost hemispherical. Head quite sunk in the prothorax, pitchy. Thorax very finely punctured, and with sparse, very short grey pubescence; base and sides more thickly punctured, the former rather bowed in the middle, the latter forming indistinct hind angles. Elytra shining, with distinct rows of separate punctures, which are deeper below the shoulders, the callus nearly smooth. Two deep submarginal striæ, distinct at the apex, passing into punctured series at the base. The pubescence is very sparse, and only distinct at the apex, where it is subsetose. Of this very distinct species only three specimens have yet occurred. The antennæ are apparently ten-jointed, the five intermediate being very short, the two subapical ones dentate, transversely triangular, subequal.

Section C. *Antennæ eight-jointed.*

3. **Dorcatoma contracta.**

Breviter orbicularis, nigra, nitida, parce breviter pilosa; elytris parce punctulatis, striis duabus submarginalibus profunde impressis; antennis ferrugineis; pedibus piceis, femoribus dilutioribus. Long. 1–2 millim.

Hab. GUATEMALA, Calderas, Capetillo, Aceituno ♀ ? (*Champion*).

This is a very short and broad insect, with a prominent humerus, two well-marked striæ close to the margin, which are entire, and a short one near the shoulder above them. The antennæ have the first joint of the club, *i. e.* the sixth, very strongly and dentately produced internally, so that the width is greater than the length; the two terminal ones are subequal and not angulate. The example from Aceituno has the base and three terminal joints of the antennæ pitchy, and the sixth or first club-joint scarcely produced. It may probably be the female.

Fam. BOSTRYCHIDÆ.

The Bostrychidæ are a family of small extent, clearly related in many of their details to both the Cleridæ and the Anobiides. They are, as far as is known, xylophagous; and we meet with here a curious modification of the apical portion of the elytra, for the purpose of ejecting the comminuted fragments of wood from their bores, which is so obviously analogous to that in the Scolytidæ as to be frequently mistaken for a case of real affinity. The distribution of the smaller species is nearly universal; but it is in tropical Africa that the most highly developed types occur, in the genus *Apate*. The New World, however, shows a very considerable contingent, both in number of species and their size.

Subfam. *BOSTRYCHINI.*

POLYCAON.

Polycaon, Castelnau, in Silberm. Rev. Ent. iv. p. 30 (1836).

About ten species of this genus are known. The typical species is a Chilian insect; one is described from Demerara; the remainder are peculiar to the northern continent of America.

1. **Polycaon exesus.** (Tab. X. figg. 18 ♀, 19 ♂.)

Polycaon exesus, Leconte, Proc. Ac. Phil. 1858, p. 74; Horn, Revision, Proc. Am. Phil. Soc. 1878, p. 553[1].

Hab. North America, peninsula of Lower California[1].—Mexico, Cordova (*Sallé*, ♂); Guatemala, Torola (♂ ♀), San Gerónimo (*Champion*, ♀).

The description of the female, which was the only sex known to Leconte and Horn, perfectly agrees with our insect. I feel no doubt in uniting the males in Sallé's and Champion's collections with this, especially as the latter collector met with both sexes at Torola: the specimens figured in our Plate are both from the latter locality. The largest specimen (one from Cordova) is 21 millim. in length; the head is finely and closely granulate all over; the thorax thickly punctured on the disk with a fine impressed central line; the elytra nearly glabrous, their apex obliquely declivous, the margining carina extending so far as to form scarcely more than a semicircle; at the top of the declivity near the suture a longitudinal subdentiform callus. The smaller male (also from Cordova) is 12 millim. long; it agrees with the larger one, excepting that the thorax is more compressed laterally, the elytra have a few coarse punctures at their bases, and the suture more evidently raised at the apex. The male from Torola is intermediate in size, but is clearly of the same species. I possess males which I

refer to this species with some doubt, which have the sides of the elytra plicate, but of which I do not know the exact locality *.

2. Polycaon plicatus.

Polycaon plicatus, Leconte, Trans. Am. Ent. Soc. 1874, p. 65; Horn, Proc. Am. Phil. Soc. 1878, p. 553[1]. ♂.

Polycaon obliquus, Lec. loc. cit. p. 66; Horn, loc. cit. ♀.

Hab. North America, Texas[1].—Mexico, Cordova, Peras (*Sallé*).

The male specimen from Peras does not altogether agree with the two from Cordova; for its elytra are nearly smooth and are not plicate at the sides; but even the two from Cordova vary a good deal in sculpture, one having an indistinct subapical callus, while the other is much more thickly punctulate, and I think it much more probable that they all belong to one species. I have carefully considered them, together with a specimen (a female) of *P. obliquus* from Texas, and feel sure these species should be united. The plication of the elytra is probably a very variable character and common to other species.

Subfam. *LYCTINI*.

LYCTUS.

Lyctus, Fabricius, Ent. Syst. i. p. 502 (1792).

This is one of those doubtful forms which are so difficult to place anywhere satisfactorily, having various affinities. I think, however, the sum of its characters are more in harmony with the Bostrychidæ than with any other family; and it is nearer, perhaps, to *Psoa* than to any other genus. Kiesenwetter, in the 'Naturgeschichte der Insecten Deutschlands,' has thus placed it; and he states the neuration of the hind wings fully to bear out this view. Species of *Lyctus* occur in various parts of the world, including Ceylon, New Zealand, North America, and Chili.

1. Lyctus carbonarius.

Lyctus carbonarius, Waltl, Faun. i. p. 167 (1832)[1].

Hab. Mexico[1].

Unknown to me.

* I have not thought it well *at present* to make an alteration in the name of this species, for lack of direct evidence; but I feel convinced that this species is *Apate femoralis*, Fabr. Ent. Syst. i. 2, p. 361, which description refers to the male, and that *Apate gonagra*, Fabr. (Ent. Syst. Suppl. p. 157; Syst. El. ii. p. 380), refers to the female. These species "*Hab.* in Americæ insulis," *i. e.* the Antilles. I myself possess very old specimens of each sex from the Isle of Barthélemy thus labelled, and which are thus conspecific with the insect here recorded. The early writers on North-American insects have not attempted to account for all the Linnean and Fabrician species.

2. **Lyctus prostomoides.**

Oblongus, brunneus ; prothorace subquadrato, postice parum angustato, minute punctato, medio depressiusculo ; elytris breviter sericeo-pubescentibus ; capitis fronte transversim impressa, epistomate utrinque ante oculos elevatiore. Long. $3\frac{1}{2}$–4 millim.

Hab. GUATEMALA, Capetillo, San Gerónimo, Purula, El Tumbador (*Champion*); PANAMA, San Lorenzo (*Champion*).

Species of *Lyctus* are usually very variable in size ; the present species will probably form no exception to this rule, although, of about a dozen specimens collected by Mr. Champion, the size only varies about half a millimetre. Its colour is rusty red or rich brown ; and it is distinguished from other species known to me by the absence of linear pubescence, very faint and obsolete striæ alone being discoverable on the elytra. The ridge in front of the eyes commences at the insertion of the antennæ, and in other species only forms the tubercle from which they arise. The thorax is very even and nearly square, but narrows behind, the sides being very straight ; the central depression is wide and shallow, and bifurcate in front. The elytra are less parallel than in some species, as they narrow slightly towards their apex ; the pubescence, which is depressed and not in series, is yellow. The above description is from specimens from El Tumbador, where Mr. Champion took eight specimens.

3. **Lyctus griseus.**

Oblongus, nigro-piceus, opacus, dense griseo-pubescens ; antennarum articulo ultimo rufo ; prothorace haud fossulato, subquadrato, angulis posticis obtusiusculis ; elytris seriatim pubescentibus, vix puuctatis. Long. $1\frac{1}{2}$–3 millim.

Hab. GUATEMALA, San Gerónimo, Paraiso (*Champion*).

The specimens from San Gerónimo agree in being more densely and coarsely pubescent than any species known to me. The two from Paraiso are not only browner red in colour, but seem to have more rigid and sparser hairs in rows on the elytra ; one of these is a very small example ; the smallest of the San Gerónimo specimens is fully two millimetres in length. In these two specimens the antennæ and legs are rusty red ; but in all the San Gerónimo ones they are dark with the apical joint clear red. The absence of any distinct thoracic fovea is a good character ; a central line is sometimes indicated in the disposition of the hairs, which are very dense and hide the actual surface of the disk. I have little doubt that this is a very distinct species ; and possibly the Paraiso species is different.

APATE.

Apate, Fabricius, Syst. Ent. p. 54 (1775).

The type of *Apate* is *A. terebrans*, Pall., which is taken to be the same as *A. muricata*, Fabr., the former being found in Africa, the latter in America. With this type we must join about a dozen species of middle or large size found in various parts of the

tropics. The occurrence of the same species in Africa and South America is a remarkable feature in their distribution. The whole family, and especially the larger species, need careful revision, when perhaps some further explanation of this anomalous fact may be hoped for.

1. **Apate punctipennis.**

Apate punctipennis, Leconte, Proc. Acad. Philad. 1858, p. 73.
Amphicerus punctipennis, Horn, Proc. Am. Phil. Soc. 1878, p. 547.
Apate deflexa et *tristis* (Sturm, coll. Sallé).

Hab. North America, Texas, Utah, New Mexico, Arizona, California State and peninsula.—Mexico, Cordova (*Sallé*), Presidio (*Forrer*), San Pedro, Coahuila; Guajuco, Nuevo Leon (*Dr. Palmer*).

The species of *Apate* have the most intimate affinity even when from distant parts of the world; and their close resemblance makes their determination very difficult. I am at present uncertain whether more than one species exists in Mexico; for, although I have a second species so labelled in my own collection, it does not accord with the characters given by Horn for *A. fortis*, Lec.

The present species may be recognized by the acuminate dentiform points in the front margin of the thorax being approximate and nearer together than the eyes, and also by the funiculus of the antennæ, composed of the third to the seventh joints, being much longer than the three terminal ones, with the joints themselves bead-shaped, longer than broad. The apex of the elytra is declivous; in the specimen labelled *A. deflexa* there are two acute callosities; but in most of the specimens there is merely an abrupt termination of the convexity of the elytron leaving a sort of round callus; the interstice nearest the suture is faintly raised. In the other species which I possess referred to Mexico, the antennal funiculus is shorter than the club, and scarcely longer than the second joint; its joints are strongly transverse and connate.

BOSTRYCHUS.

Bostrichus auctorum nec Geoffroy, Hist. Ins. p. 301.

The type of *Bostrichus* is *B. capucinus*, Linn., as reference to Geoffroy makes apparent, which is an *Apate*. This is therefore one of those instances in which, if the rule of priority be observed, a long-established and generally received genus must be suppressed. I here adopt the name for those species which have the elytra more or less tubercular or costate, and the labrum distinct from the clypeus, and therefore in the same sense in which Mr. Horn has used it for the North-American species found in the United States. In the Munich Catalogue, under this generic name, are included many true *Apatæ*; but, restricted as above, I have not seen species I should include excepting from the New World. The presence of hind angles or more or less truncation of the

prothorax behind is of no use (as Mr Horn has himself observed) for the separation of these genera; and I am inclined to reserve a detailed examination of the question for a revision of the whole family.

1. **Bostrychus verrucosus.** (Tab. X. fig. 22.)

Niger, opacus, prothorace antice uncinato-bicorni, disco granulato, medio subsulcato, angulis posticis subrectis; elytris seriebus duabus tuberculorum, ad apicem valde callosis, apicibus singulis excisis, externe mucronatis. Long. 8–12 millim.

Hab. GUATEMALA, Capetillo, El Tumbador, Cerro Zunil (*Champion*).

The figure is taken from a Cerro Zunil example.

Smoky black, with a greyish tint like burnt cork, wider behind than in front. Head with the labrum distinct, transverse; maxillary palpi with the apical joint acuminate; summit of the head evenly granulate. Thorax narrower than the elytra, with distinct hind angles, and the sides and disk roughened with tubercles, which become tooth-like curved points in front, two of which project over the head. The elytra are very much roughened with tubercles, which posteriorly end in callosities. There are two or three series of these tubercles: the larger ones are elongate; and between them are flat-bottomed punctures.

The underside is a little shining, but is finely punctured.

SINOXYLON.

Sinoxylon, Duftschmidt, Fn. Aust. iii. p. 86 (1825).

A very widely distributed genus, of which *Bostrichus bispinosus*, Oliv., = *Sinoxylon muricatum*, Dufts., &c., is the type. The species of this genus have ten-jointed antennæ; the club has the first two joints strongly produced internally, and they are of the serrate form, the five preceding are very short, together not being much longer than the first club-joint; many species from Asia and the East generally have the elytra flatly and obliquely truncate, sometimes with two mucros from the centre of this declivity. The species referred to this genus by North-American authors do not pertain to it, but to *Xylopertha* or *Enneadesmus*, or to new genera parallel to them. We have, however, one species from Guatemala, due to the systematic collecting of Mr. Champion.

1. **Sinoxylon championi.**

Oblongum, cylindricum, antennis tarsisque rufo-testaceis; prothorace antice muricato, granuloso, medio transversim elevato, basi crebre granuloso-punctata; elytris nitidis, confuse crebrius punctulatis, apice oblique declivo, haud calloso. Long. 5 millim.

Hab. GUATEMALA, Chacoj (*Champion*).

This is rather a robust species, with the thorax equal in breadth to the elytra, and of

more than half their length. The labrum (as is usual in other genera of this family) is fringed with golden hairs. Of the two specimens we have received, one has the granulations of the front of the thorax rather more pronounced than the other, and three of them form denticules; the mandibles are simple, but notched at the tip. The elytra and whole body are black without any tendency to redness. The suture is depressed in the declivity; and there is there a faint sutural stria; the apex is evenly punctured, like the rest of the elytra.

This is the only American species of *Sinoxylon* I have yet seen.

XYLOPERTHA.

Xylopertha, Guérin-Méneville, Ann. Soc. Ent. Fr. 1845, Bull. p. 17.
Sinoxylon, sec. A, Horn, Proc. Am. Phil. Soc. 1878, p. 541.

Xylopertha differs from *Sinoxylon* in having the three terminal joints of the antennæ elongate and arranged in sequence; in *Sinoxylon*, of which *S. muricata*, an Austrian insect, is the type, the same joints are arranged in a perfoliate club, the first and second joints of the club being transverse, much developed internally. The type of *Xylopertha* is *X. sinuata*, also from Austria; and the North-American species referred by Horn to *Sinoxylon*, Dufts., must be brought into it, or a new genus be made for them, for which there is no present occasion. About fifteen species are catalogued of this genus, widely distributed, and many more undescribed exist in collections; but no doubt some of these will present generic differences from the European type. I have not seen species of this genus in which the apex is so abruptly truncate as in *Sinoxylon*.

1. **Xylopertha sericans.** (Tab. X. fig. 21.)

Sinoxylon sericans, Lec. Proc. Ac. Philad. 1858, p. 73, ♂.
Sinoxylon asperum, Lec. loc. cit., ♀.
Sinoxylon sericans, Horn, Proc. Am. Phil. Soc. 1878, p. 542[1].
Sinoxylon mexicanum, Dej. (*Sallé coll.*).

Hab. North America, Texas[1], California peninsula[1].—Mexico, Cordova (*Sallé*, ♂ ♀), Presidio (*Forrer*, ♂ ♀), Minas Viejas (*Dr. Palmer*, ♂ ♀); Guatemala, San Gerónimo, Zapote (*Champion*); Honduras (♂ *Sallé coll.*); Panama, Tolé (*Champion*).

This species is, I have no doubt, the *S. sericans* of Horn and Lec.; but the expression, "The elytral punctures becoming gradually coarser from the base to the declivity," affords me some perplexity, as the reverse is the case here. The curious development of the left mandible into a horn-like process in the male leaves little doubt on the subject. The Guatemala specimens are rather larger and darker, the Honduras one

(a male) redder at the base of the elytra than the Mexican specimens. Champion did not meet with the male.

The specimen figured is one from San Gerónimo.

2. **Xylopertha tubularis.**

Elongata, cylindrica, nigro-picea, prothorace subopaco dense granuloso-punctato, antice muricato, utrinque denticulis quinque; elytris nitidis, crebre obsoletius punctatis, versus apicem callo duplici cariniformi, margine apicali reflexo; pedibus piceis. Long. 8 millim.

Hab. PANAMA, Bugaba (*Champion*).

More elongate and cylindrical than *X. sericans*. Almost black; the antennæ are fuscous, and the legs a little paler; the abdomen is clothed with sericeous hairs. The head is finely, obsoletely, and confluently punctured, with a deep transverse impression between the eyes. The punctuation of the elytra is irregular and transversely confluent. The apex obliquely declivous and punctate, the lower of the two callosities most distinct.

A single specimen is all I have seen yet.

Very closely resembles a species from New South Wales, which, however, has the apical margin notched in a remarkable way and sharper callosities.

3. **Xylopertha scapularis.**

Elongata, cylindrica, parum nitida, nigra; prothorace antice muricato, denticulis quatuor vel quinque utrinque prominentibus, basi crebre subtiliter punctata, medio tenuiter canaliculato; elytris crebre subrugulosopunctatis, apice declivo, haud calloso, breviter fulvo-pubescente, humero rufo. Long. 4–5 millim.

Hab. MEXICO, Orizaba (*Sallé*), San Andrés Tuxtla (*Sallé*); GUATEMALA, Cerro Zunil, San Joachin, Torola (*Champion*).—*Var.*? GUATEMALA, San Gerónimo, Chacoj (*Champion*); PANAMA, San Lorenzo (*Champion*).

The nearest ally of this species known to me is *X. basilaris* (*Sinoxylon basilare*, Say), from which it differs in the punctuation being finer and closer, especially at the apex, where in that species it is very coarse. It lacks the raised interstices which are very conspicuous at the base of the elytra in *X. basilaris*; and the denticulations on each side of the declivity are also wanting. The specimens from Chacoj, and one from San Gerónimo, are small, and the bases of the elytra are only indistinctly rufous-brown; but otherwise they do not differ from the typical ones of this species.

4. **Xylopertha sextuberculatum.**

Sinoxylon sextuberculatum, Lec. Proc. Acad. Philad. 1858, p. 73; Horn, Proc. Am. Phil. Soc. 1878, p. 543[1].

Hab. NORTH AMERICA, California[1], Texas (*Belfrage*).—MEXICO, Guanajuato (*Dugès, coll. Sallé*); GUATEMALA, San Gerónimo (*Champion*).

5. **Xylopertha quadrispinosum.**

Sinoxylon quadrispinosum, Leconte, New Sp. N. Am. Col. i. p. 100[1]; Horn, Proc. Am. Phil. Soc. 1878, p. 543[2].

Hab. North America, California peninsula, Cape St. Lucas[1], Arizona[2].—Guatemala, Cerro Zunil (*Champion*).

Very close to *X. sextuberculatum*; but the short carinate interstices at the base are wanting, and there are but two teeth on each side at the apex; these, however, are very acute and prominent. A single specimen was captured by Champion.

DINODERUS.

Dinoderus, Stephens, Ill. Brit. Ent. iii. p. 354 (1830).

Dinoderus appears to be separated from *Rhizopertha* on very slight and hardly sufficient grounds. It is also not very much differentiated from *Xylopertha*; but the tarsi are shorter. The first section, *Dinoderus* proper, contains about eight species, the type being a rare insect found in England. One species occurs in Madeira; and the rest are North-American. *Rhizopertha*, on the other hand, has a cosmopolitan species for its type (*R. pusillus*); and twenty-six species are catalogued from all parts of the world.

1. **Dinoderus punctatus.**

Apate punctatus, Say, Journ. Acad. Philad. v. p. 258.
Dinoderus punctatus, Horn, Proc. Am. Phil. Soc. 1878, p. 550[1].

Hab. North America, United States, Pennsylvania[1], Texas (*Belfrage*).—Guatemala, Mexico, Ciudad in Durango, 8100 feet (*Forrer*), San Gerónimo (*Champion*); Nicaragua (*Sallé coll.*).

2. **Dinoderus pusillus.**

Dinoderus pusillus, Fabr. Ent. Syst. Suppl. p. 156[1].
Rhizopertha pusilla, Steph. Ill. Brit. Ent. iii. p. 354[2]; Fairm. Rev. Zool. 1850, p. 50[3]; Jacq. Duval, Gen. Col. iii. t. 57. f. 281[4]; Kiesenw. Nat. der Ins. Deutschl. v. p. 41.
Dinoderus pusillus, Horn, Proc. Am. Phil. Soc. 1878, p. 550[5].

Hab. Europe[2 3 4]; "Americæ Ins."[1], United States[5].—Mexico, Vera Cruz (*Sallé coll.*); Honduras, Belize.

Common in wood of sugar-casks &c., and, according to Dr. Horn, in wheat. It does not appear to have been met with in any numbers in Central America. The thorax has the tubercles arranged in somewhat concentric rings, uniting into undulating rugæ in front. The tibiæ are setulose, and the elytra coarsely punctate-striate.

3. **Dinoderus substriatus.**

Dinoderus substriatus, Payk. Fn. Suec. ii. p. 142 (*Apate*); Jacq. Duval, Gen. Col. iii. t. 56. f. 280; Perris, Ann. Soc. Ent. Fr. 1862, p. 209, t. 6. f. 578–586; Horn, Proc. Am. Phil. Soc. 1878, p. 549.

Hab. Europe; Asia; China; Burmah; New Guinea, Dorey (*Wallace*); Celebes (*Wallace*); West Africa; North America, Canada, United States.—Honduras (*Sallé coll.*).—South America; Brazil.

The above localities show this to be another cosmopolitan species. It does not, however, appear to be injurious or to be met with in numbers; in our own country it is decidedly of rare occurrence. A single specimen is all we have seen from Central America at present. It may be recognized by two oblique foveæ on the base of the thorax, and by the close and confused puncturing, which on the dorsal region has a substriate look.

TETRAPRIOCERA.

Tetrapriocera, Horn, Proc. Am. Phil. Soc. 1878, p. 544.
Xylopertha (pars), Lac. Gen. des Col. iv. p. 539.

Easily recognized by the four-jointed club and very short third to seventh joints, which are obliquely transverse. But one species is known to me; it is plainly that described by Dr. Horn, but had been previously described and figured by Olivier.

1. **Tetrapriocera longicornis.** (Tab. X. fig. 20.)

Apate longicornis, Oliv. Ent. iv. 77, p. 15[1], t. 3. f. 18, *a–c*; Gemm. & Har. Cat. Col. p. 1790[2].
Tetrapriocera swartzi, Horn, Proc. Am. Phil. Soc. 1878, p. 545[3].

Hab. North America, Florida[3].—Mexico, Cordova, Teapa, Tuxtla (*Sallé*); British Honduras (*Blancaneaux*); Guatemala, El Reposo, Zapote, Torola, Rio Maria Linda (*Champion*); Nicaragua (*coll. Sallé*), Chontales (*Janson*); Costa Rica, Cache (*Rogers*); Panama, Bugaba (*Champion*).—West-India Islands, Haiti[1 2 3], Guadeloupe; South America, Brazil (*coll. Gorh.*).

The specimen figured is from Bugaba.

Fam. CIOIDÆ.

This family is of such small extent that it might form a section of the Ptinides but that it is in some respects more strongly differentiated than are the Bostrychidæ, and so to sink them in one or other of the other families is simply to ignore those important distinctions which have seemed sufficient to some coleopterists to justify their being placed in quite another of the larger aggregates, and would open the question of whether *Lyctus* could be retained here.

MACROCIS.

Macrocis, Reitter, Mittheilungen der Münchener ent. Ver. 1878, p. 34.

Corpus breve, oblongum, æqualiter ovatum. Caput (maris) longe bicorne, (feminæ) utrinque dente acuto; antennæ decemarticulatæ, articulis duobus basalibus validis, tertio elongato, 4° ad 7^{m} perbrevibus, conjunctim quam secundus vix longioribus. Tarsi breves, articulo ultimo elongato, validi.

Before I had seen Herr E. Reitter's description I had drawn up the characters of a genus which I proposed to make for a short and broad species, of which the male has two long raised horns on the head curving backwards a little; the female has also two dentiform elevations, but little raised. The thorax is unarmed and is very convex, hiding the head from above, the horns alone showing in this position. With regard to the antennæ, it is difficult, even with the microscope, to determine whether there are four or five of the very short joints between the third and the club; it is therefore uncertain whether they are ten or eleven-jointed; but I think it is as I have stated. (Reitter states them to be ten-jointed in his generic diagnosis.)

Only two species have come under my own notice.

I think it well to give my own characters as I had drawn them, as I have not at present seen Herr Reitter's insect; they agree so closely with his own that I feel no doubt, from his description, that his type is the same species as I had described under another name.

Herr Reitter describes two others from Colombia.

1. **Macrocis taurus.** (Tab. X. fig. 25, ♂.)

Macrocis taurus, Reitter, Mittheil. d. Münch. ent. Ver. 1878, p. 35 [1].

Breviter oblongus, æqualiter rotundatus, antice posticeque niger, nitidus; thorace parce, elytris obsolete striato-punctatis; antennis rufis, pedibus piceis. Long. 2 millim. ♂ ♀.

Mas. Fronte valde bicorni.

Femina. Fronte utrinque parum elevata, vel dente sublaminato parvo.

Hab. Mexico [1], Cordova (*Sallé*); Guatemala, San Gerónimo, Senahu, Las Mercedes (*Champion*); Panama, Bugaba (*Champion*).

Body glabrous, or nearly so; but under a strong glass the flat-bottomed punctures so frequent in this family are sparingly scattered over the thorax, and are more thickly so on the elytra, being obsolete at the sides and apex; but the larger ones are arranged in series. The thorax is margined at the sides, less distinctly so at the base; being very convex, the front and hind angles are both depressed; they are rounded. Less mature specimens are piceous. The eyes are very coarsely granulate; the horn in the male (the lamina in the female) arises from close to the eye, but they do not appear to me to be emarginate.

Herr Reitter's description is in a periodical very hard to obtain; and I have to acknowledge his courtesy in sending me a copy. I think it well to allow my own

description to remain, as it was penned before reading his, and agrees very closely in all points with it. His *M. diabolicus* and *M. bison*, from Colombia, are rather larger. A single female specimen from Bugaba is more finely punctured, and may belong to one of these.

2. **Macrocis setifer.**

Breviter oblongo-ellipticus, crebre fortiter punctatus, piceus, elytris seriatim dense setiferis. Long. $1\frac{1}{4}$ millim. ♂ ♀.

Mas. Fronte lamina duplici, basi latiore valde dentiformi erecta.

Femina. Clypeo utrinque elevatiore reflexo.

Hab. GUATEMALA, Senahu (*Champion*).

A smaller and shorter species than *M. taurus*, and readily distinguished by the setiferous elytra. The thorax and elytra are a very little contracted at the base, which causes the outline of this species to be less evenly elliptical than that of *M. taurus*. The tarsi are very short. The elytra are punctate-striate; but the punctures are very much closer than in the first species, and are transverse, subcrenate. The margin, both of the thorax and elytra, is reflexed and flat. *M. bison*, Reitter, loc. cit., is described as "longe *fulvo-pilosus*," but is 2·5 millim. long, and appears to differ otherwise.

Three specimens, one male and two females, are all that I have seen.

CIS.

Cis, Latreille, Préc. Car. Gén. Ins. p. 90 (1796).

About one hundred species of *Cis* have been described, chiefly from the northern temperate zone; a few, however, occur at the Cape of Good Hope and in tropical latitudes. The species are not strongly differentiated, not highly specialized, and might be regarded as representing a primitive and persistent type.

1. **Cis corticinus.**

C. boleto summa affinitate, sed elytris non distincte punctatis, haud substriatis, quam corpus paullo longiore, prothorace haud transverso mox distinguendus. Caput clypeo margine leviter reflexo; antennis sat longis, clava picea, basi testaceis, articulo tertio elongato quam quartus duplo longiore. Thorax antice margine bisinuato, medio emarginato; lateribus leviter rotundatis marginatis, basi subtilissime marginata. Elytra parum nitida, creberrime subtiliter et æqualiter punctata. Long. 4 millim.

Hab. GUATEMALA, Calderas, Totonicapam (*Champion*).

2. **Cis fasciatus.** (Tab. X. fig. 23.)

Breviter ovatus, subcylindricus, nitidus, piceus; elytris sordide flavis, fascia mediana maculaque magna subapicali infuscatis. Long. 2 millim. ♂ ♀.

Mas. Prothorace antice bituberculato; clypeo margine reflexo, obtuse sexdentato.

Femina. Prothorace mutico, clypeo margine reflexo leviter sinuato.

Hab. MEXICO, Teapa (*Sallé*); GUATEMALA, San Isidro, Zapote (*Champion*).

Punctuation very fine, not evident; the prothorax with some ashy pubescence; the elytra have a very short golden pruinose pile. Head with the clypeus raised at the margin from one eye to the other. In the male this is notched in front in the middle, and with a double sinuation on each side, so that six blunt teeth are formed in the margin. The thorax quite covers the head, when viewed perpendicularly; in the male two projecting tubercles are present on the front; in the female it is quite plain.

The figure is taken from a male Zapote example.

I have retained the MS. name which this insect bears in Sallé's collection.

3. **Cis bubalus.**

Cis bubalus, Reitter, Mittheil. d. Münch. ent. Ver. 1878, p. 32[1].

Breviter oblongus, subparallelus, nigro-piceus, nitidus, antennis rufis, elytris pruinosis. Long. $2\frac{1}{4}$ millim. ♂ ♀.

Mas. Prothorace antice acute bituberculato, clypeo margine obtuse quadridentato.

Femina. Prothorace mutico, clypeo margine leviter reflexo.

Hab. Mexico[1], Cordova (*Sallé*), Oaxaca (*Boucard, coll. Sallé*); Guatemala, Cerro Zunil, San Juan, Chacoj, El Tumbador, Zapote (*Champion*).

Very closely allied to *C. fasciatus*, but usually black or pitchy, without any trace of a fascia. The thorax is as wide as the elytra, with the sides parallel in the male, the front a little narrowed in the female; and the projecting tooth-like tubercles are more prominent than in *C. fasciatus*. The very short pruinose pile of the elytra is thicker, and is of a golden shining appearance; the punctuation fine, but close and distinct. A large number of this were taken, especially at San Juan in Vera Paz. The specimens from Oaxaca are immature.

I have no doubt from his description that this is the *Cis bubalus* of Reitter, whose diagnosis of the male is:—"*Mas.* Clypeus apice sublaminatus, lamina trisinuata, obtuse quadridentata; thoracis margine antico bidentato."

4. **Cis bisbidens.** (Tab. X. fig. 24, ♂.)

Oblongus, subcylindricus, nigro-piceus, parum nitidus, crebre punctatus. Long. 3 millim. ♂ ♀.

Mas. Capite antice bidentatus, prothorace spinis duabus acutis, antice subrecte productis.

Femina. Prothorace antice obsolete bituberculato.

Hab. Mexico, Orizaba, Puebla (*Sallé*).

Of the same size and in form not unlike *Cis bubalus*; the males are readily recognized by the two acute thorn-like productions from the thorax, and by the *two* laminar elevations of the margin of the head in front. Of four specimens there are two males and one female from Orizaba, and one female, which cannot certainly be identified, but is probably of the same species, from Puebla. It will probably be found that the females of this species have less bulky thoraces than *Cis bubalus*, with which they

might be confounded. Two of the specimens from Orizaba have black heads and thoraces and red-brown elytra; but very little dependence can be placed on colour in this family.

5. Cis bilimeki.

Bilimeki, Reitter, Mittheil. d. Münch. ent. Ver. 1878, p. 33[1].

"Oblongus, niger, opacus, æqualiter confertissime punctulatus, setulis brevissimis subaureis dense tectus; thorace coleopterorum latitudine, subtransverso, lateribus leviter rotundato, angulis anticis obtuse rectis, posticis fere rotundatis; elytris latitudine haud duplo longioribus; antennis pedibusque testaceis." Long. 2·2 millim.

"*Mas.* Clypeus apice, prothoracis margine antico erecte laminatis, lamina capitis lata parum, prothoracis sat angusta fortiter in medio emarginata."

Hab. Mexico [1] (*Bilimek*).

Unknown to me. Herr Reitter remarks:—"Scheint selten zu sein."

6. Cis pilosus.

Ovatus, testaceus, supra dense flavo-pilosus, elytris obsolete subseriatim punctatis, pilo seriatim disposito. Long. 2 millim.

Hab. Guatemala, Calderas (*Champion*).

Head with the mandibles rather prominent, clypeus a little elevated on each side. Prothorax of the male with the front margin a little produced and elevated in a lamina, but only very slightly so, nearly smooth, transverse. Scutellum broadly triangular. Elytra conspicuously pubescent, the upright pile in lines.

Six specimens, immature, or at least not fully coloured, taken at Calderas.

7. Cis creberrimus.

Cis creberrimus, Mellié, Mon. p. 357, t. 4. fig. 5.

Hab. North America, United States, New Orleans.—Mexico (*coll. Gorham* ex *Saunders*); Guatemala, Zapote, El Reposo (*Champion*).

A single specimen from each of the localities doubtfully assigned to this little species. It is an elongate thickly punctured insect, with erect setose hairs and quite yellow legs and antennæ; the latter are clearly ten-jointed in the Guatemala specimens.

8. Cis puberulus.

Cis puberulus, Mellié, Mon. p. 538.

Hab. Mexico (*coll. Gorham* ex *Saunders*).—West Indies, Island of St. Thomas.

9. **Cis punctatus.**

Cis punctatus, Mellié, Mon. p. 337[1].

Hab. North America [1].—Guatemala (*Sallé coll.*), Zapote (*Champion*).

This appears to me to have eight-jointed antennæ; there are, however, only three specimens. It is uniformly and rather coarsely punctured all over, about 1 millimetre long. They are named as above in Sallé's collection. A single specimen was met with by Champion. The male has the thorax bituberculate in front. Possibly this and *Ennearthron multipunctatum* are not distinct species. It is therefore doubtful if the identification is correctly made.

ENNEARTHRON.

Ennearthron, Mellié, Rev. Zool. 1847, p. 110.
Eutypus, Redt.

Small species, distinguished by having nine-jointed antennæ; some have protuberances on the thorax.

1. **Ennearthron multipunctatum.**

Ennearthron multipunctatum, Mellie, Mon. p. 368[1], t. 4. f. 16.

Hab. West India-Islands, Cuba [1].—Mexico (*coll. Gorham* ex *Saunders*).

CERACIS.

Ceracis, Mellié, Ann. Soc. Ent. Fr. 1848, p. 375.

Extremely small species, remarkable for having in the males a bifurcate laminate horn on the head, and sometimes the prothorax also horned. The antennæ have eight joints.

Five species are included in the Munich catalogue, two being from Cuba; but of these some are apparently but synonyms of one species.

1. **Ceracis militaris.** (Tab. X. fig. 26, ♂.)

Ceracis militaris, Mellié, Mon. p. 378[1], t. 4. f. 23.
Ceracis furcifer, Mellié, Mon. p. 379[2], t. 4. f. 24 (see Sallé coll.).

Hab. Mexico [1], Tuxtla, Cordova; Guatemala (*Sallé coll.*), San Juan in Vera Paz, Zapote (*Champion*).

In the 'Check List of the Coleoptera of America north of Mexico,' which was edited by Mr. Crotch, this species is quoted as synonymous with *C. sallei*, Mell. I have no examples from the United States, and therefore I cannot assert that it is so*. The two species standing in Sallé's collection under the names cited above are identical. This species may be known by its very small size (the largest examples are not above 1 millimetre in length, and the smallest are considerably less), by its shining aspect, the thorax narrowing in front and with a few very small scattered punctures, and by the single bifid laminar horn on the head; the thorax is unarmed. The figure is taken from a San-Juan male specimen.

2. **Ceracis tricornis.** (Tab. X. fig. 27, ♂.)

Nigro-piceus, nitidus, thorace elytrorum latitudine, parce profunde punctato, elytris distincte punctatis.
Long. $\frac{3}{4}$–1 millim.

Mas. Capite cornuto, cornu bifido; prothorace antice bimucronato.

Femina. Capite thoraceque muticis.

Var.? capite cornu truncato, tenui, prothorace antice bituberculato.

Hab. MEXICO, Teapa, Cordova (*Sallé coll.*); GUATEMALA, San Juan in Vera Paz, Tamahu, Zapote (*Champion*).

This species varies a good deal in the development of the thoracic projecting teeth, but will be distinguished from *C. militaris* by the deeper and sparser punctuation of the thorax, and by its not narrowing in front: these characters, in addition to the teeth on the thorax, induce me to consider it a separate species. The thoracic teeth and often the horn of the head are yellow, the rest of the insect being pitchy with yellow antennæ and legs, the club of the former darker. Of the supposed females of this insect nothing reliable can at present be said, as I do not see that they differ essentially from those of *C. militaris*, and both species occur in the same localities. The specimens from which the figures of both of these species in our Plate were taken were collected at San Juan, probably having been found at one time and place.

* Reitter (*loc. cit.* p. 37) says *C. sallei* is not identical with *C. militaris*, and that the latter has nine joints to the antennæ and is an *Ennearthron*. According to my own observation the insects which we here regard as *C. militaris* and *C. furcifer*, being so labelled in Sallé's collection, have eight joints. But even if there were nine it would not follow they were congeneric with *Ennearthron*.

SUPPLEMENT.

SINCE the commencement of the present volume in 1881 a large number of specimens have arrived from Messrs. Godman and Salvin's collectors, among which are a considerable number of new species. Mr. Champion's journey into the interior of the State of Panama has also been productive of a vast number of species, proving that the rich fauna of Central America is far from being exhausted at present. It is the object of this Supplement to describe and record these, as well as to indicate any corrections and additional facts which may have come to light during the progress of the work.

LYCUS (p. 1).

Lycus fernandezi (p. 2).

To the Mexican localities given, add:—Northern Sonora (*Morrison*).

Specimens sent from the above locality and ticketed "*Lycus cruentus*, var.," are identical with *L. fernandezi*. If this determination is correct, Dr. Leconte's name would be adopted for this insect; but I have not yet seen specimens from Arizona or California, which are quite as likely to be referable to one of its near allies.

LYCOSTOMUS (p. 4).

Lycostomus sordidus (p. 5).

To the localities given, add:—MEXICO, Istapan (*coll. Sallé*); GUATEMALA, Sinanja, Sabo in Vera Paz (*Champion*).

3 (A). **Lycostomus angulatus.**

Niger, subopacus, sat elongatus; prothoracis lateribus elytrorumque triente basali ochraceo-flavis; nigritudine apicali versus basin angulariter porrecto. Long. 7–12 millim. ♂ ♀.

Mas. Tibiis omnibus basi leviter curvatis.

Hab. GUATEMALA, Sinanja valley, Sabo in Vera Paz (*Champion*).

This is very nearly allied to *L. sordidus*. It is, however, less expanded behind, and has the basal third of the elytra orange-yellow, with the black forming a sharp indentation. The tibiæ are much less strongly curved, and the antennæ seem to have their third joint only about half as long again as the fourth. A series of the smaller specimens were taken by Mr. Champion in the dense forest at Sabo.

5 (A). **Lycostomus rusticus.**

Ochraceus; abdomine, antennis (articulo basali excepto), tibiis tarsisque nigris; ore cum palpis fuscatis, prothorace lateribus leviter foliaceis, reflexis; elytris postice subrotundato-ampliatis. Long. 16 millim. ♂.

Hab. MEXICO, Cordova (*Höge*).

Easily distinguished from any species from Central America, except the following, by its ochraceous colour above; from *L. bucolicus* it differs in having no tinge of black at the apex of the elytra, in the body beneath and the tibiæ being black, and in the narrower thorax, with the sides much less foliaceous. The antennæ have the basal joint only yellow. The prothorax has an obsolete channel, and is duller than in *L. bucolicus*; the costæ of the elytra are less raised.

A single specimen, of the sex of which I am not certain, but which from the moderately bent tibiæ I think to be a male, has occurred.

5 (B). **Lycostomus bucolicus.** (Tab. XI. fig. 1, ♂.)

Ferrugineus vel ochraceus; antennis (articulis duobus basalibus exceptis), palpis, tarsis elytrorumque apice indeterminate nigris; prothoracis lateribus fortiter foliaceis, reflexis; elytris distincte quadricostatis. Long. 14–16 millim. ♂ ♀.

Var. Tibiis nigrescentibus.

Hab. PANAMA, Tolé (*Champion*).

The thorax in this species is rather wide and lunate, the front is bisinuate, sometimes appearing to have a double notch; the centre of the disk has an obsolete channel, not reaching the front, where, indeed, there is a short carina. The antennæ are black, but the two basal and the inner side of the third joint are yellow. The rostrum is rather long and thin, not differing in the sexes. The tibiæ of the males are moderately curved. The black at the apex of the elytra varies a little in extent, but is never much more than a spot undefined internally. Found very abundantly on the savannas near Tolé on a yellow-flowered composite shrub, about the flowers of which it may be seen flying in the hottest sun; large numbers were taken *in copulâ*. This species should precede *L. loripes*, Chev.

Lycostomus loripes (p. 6).

To the Mexican localities given, add:—Northern Sonora (*Morrison*).

Lycostomus sommeri (p. 6).

To the Mexican localities given, add:—Ventanas, alt. 2000 feet (*Forrer*).

Mas. Tibiis leviter curvatis, apicibus intus mucronatis.

Var.? Prothorace sulco nigro, abdominis segmentis sex ventralibus serie duplici nigro-maculatis.

7 (A). **Lycostomus sanguineus.**

Læte sanguineo-rufus; antennis, tarsis elytrorumque apicibus nigris; elytris intervallis subrugosis. Long. 12–13 millim. ♂.

Hab. MEXICO, Northern Sonora (*Morrison*).

Very nearly allied to *L. sommeri*, but amply distinguished by the red tibiæ, coarser sculpture of the elytra, their brick-, or rather blood-red colour, and by its peculiarly shining, waxy look.

Six specimens, all males.

LYGISTOPTERUS (p. 7).

5. **Lygistopterus cæruleus.**

Nigro-cæruleus, nitidus; prothorace disco nigro lateribus rufis, elytris saturate cyaneis. Long. 16–17 millim. ♂ ♀.

Mas. Tibiis leviter curvatis, segmento apicali utrinque lamina pubescente, prothoracis angulis posticis subacutis, elytris postice ampliatis.

Hab. GUATEMALA, Quiche Mountains (♂), Totonicapam (*Champion*, ♀).

The elytra are entirely of a deep blue in this very distinct and beautiful species. The thorax differs in shape in the sexes; being wider in front, with more rounded sides, in the female; its margins are much thickened and raised, except at the base. The rostrum is very short in the female, longer in the male. The apical segments of the abdomen are not so elongated as in most Lycidæ, the one preceding the one here termed "apical" being raised in the middle, acutely emarginate, somewhat compressed, with acute lateral lobes. Only three specimens (one male and two females) have yet occurred. These were captured in the pine-forests, at elevations of from 8000–10,500 feet.

6. **Lygistopterus lætus.** (Tab. XI. fig. 2, ♂.)

Nigro-cæruleus; prothoracis disco nigro lateribus rufis, elytris læte aurantiaceis vel rufis, apicibus saturate cæruleis. Long. 12–15 millim. ♂ ♀.

Mas. Antennis longioribus, tibiis curvatis apicibus mucronatis.

Hab. PANAMA, Volcan de Chiriqui 6000 to 7000 feet (*Champion*).

Very distinct in the system of its coloration from any species yet described, the apex of the elytra and their suture at its base alone being black, with a very faint blue tint. The body beneath is blue-black; the head, antennæ, palpi, and legs black. The rostrum is very short and stout, the head being simply produced a little in front. The thorax is not wider than the elytra at their base; it is subquadrate, rather longer than wide, black, with the sides broadly yellow; the disc is shining. The scutellum and base of the suture are black, the elytra have the raised lines scarcely distinct, and the whole surface is thickly clothed with close pubescence, hiding any sculpture. Two specimens are all that have occurred. These were found in the dense virgin forest and at high elevations.

Two specimens from Northern Sonora, Mexico (*Morrison*), in bad condition, labelled "*Calochromus*, sp.," probably belong to this species, but they are very much smaller than my type.

7. **Lygistopterus flammeus.**

Niger, nitidus; prothoracis lateribus elytrisque sanguineo-rufis, his sutura basi nigricante. Long. 13 millim.

Hab. PANAMA, Volcan de Chiriqui 6000 feet (*Champion*).

Very similar to *L. lætus*, and scarcely differing from it except in the colour of the elytra, which are of a fine carmine or blood-red, without any indication of black at their apex; the suture is more narrowly black at the base; and two or three costæ are tolerably distinct. This may possibly prove to be a variety of *L. lætus*; but I have not seen varieties of other species; and it is at least a very curious and beautiful form. The specimen is, I believe, a female, and is the only one I have seen.

Lygistopterus hæmatopterus (p. 8).

Hab. MEXICO, Pinos altos, Chihuahua (*Buchan-Hepburn*).

Four specimens, altogether agreeing with my type; possibly this is synonymous with *L. rubripennis*, Lec.

The late Dr. Leconte [Trans. Amer. Ent. Soc. ix. p. 28, 1881] has referred four of the North-American species of this genus to *Calochromus*, Guérin—a type with which they have nothing to do. *Calochromus* is exclusively an Eastern genus. I have seen species labelled *Calochromus* by Dr. G. Horn; they are inseparable from *Lygistopterus*.

8. **Lygistopterus** ——?

Hab. MEXICO (*coll. Sallé*); GUATEMALA, Sinanja valley (*Champion*).

Two specimens, not altogether agreeing, and which I cannot refer to any known species. They are black, with the sides of the thorax and base of the elytra yellow. Allied both to *L. sulcicollis* and *L. lætus*.

LUCAINA (p. 8, to follow the genus *Lygistopterus*).

Lucaina, Dugès, La Naturaleza, iv. p. 180.

The position of this curious genus is, I am convinced, close to *Lygistopterus*. I omitted it formerly, not feeling sure where to place it. The head is rostrate, the produced part being very wide at the base.

1. **Lucaina schini.**

Lucaina schini, Dugès, La Nat. iv. p. 180, t. 6. fig. 7.

Hab. MEXICO (*coll. Sallé*).

An orange-red insect; with the head, antennæ, legs, and body beneath black in the male; in a female example before me the head, and femora, are yellow. The elytra are closely and obsoletely striate; the thorax is more quadrate than in the following new

species, with a rudely-formed channel, the sides of which are ridged and joined by an oblique curved ridge with the lateral margins; the disc is sometimes marked with blackish, and the scutellum black.

2. **Lucaina marginata.** (Tab. XII. fig. 8.)

Nigro-picea, parum nitida; prothorace antea et lateribus, elytrorum limbo laterali ante apicem desinente, femoribus anticis et intermediis aurantiaceis, rostro etiam nonnunquam flavo; elytris profundius striatis, disco subcæruleo. Long. 6–6½ millim. ♂ ♀.

Hab. Mexico, Northern Sonora (*Morrison*).

Readily distinguished from *L. schini*, not only by the colour, which appears very constant (with the exception that the head is sometimes more or less yellow), but by the more shining appearance and deeper striation of the elytra. The thorax is very uneven; the central ridges are twice interrupted by a deep transverse depression, so that the central channel only appears as separate and very irregular foveæ. The sculpture of the elytra is wholly different from that of *L. schini*, being finely rugulose. In *L. schini* it is not easy to see the separate striæ; here they are quite distinct. About a dozen examples were taken.

The figure is that of a female specimen.

CALOPTERON (p. 8).

Calopteron bifasciatum (p. 8).

To the localities given, add:—Guatemala, Chacoj (*Champion*); Panama, Bugaba, Volcan de Chiriqui (*Champion*).

Found in plenty at Chacoj in the Polochic valley.

Calopteron pallidum (p. 9).

To the localities given, add:—Panama, Bugaba, Volcan de Chiriqui (*Champion*).

A series of specimens which I refer to this, but which show no trace of a fascia, were collected by Mr. Champion.

Calopteron divergens (p. 11).

This species would be better placed following *C. pallidum*. A large number of specimens captured at Bugaba and the Volcan de Chiriqui are, I think, referable to the species described under this name from Nicaragua. The males are in general smaller, and have their elytra more divergent at the apex than the females; while one form lacks the dark fascia near the base, and then rather nearly resembles *C. corrugatum*. Other specimens, which have the dark fascia, are very close to *C. reticulatum*, but these are always to be separated by the more expanded form of the elytra, which, as in *C. pallidum*, have the row of cells in the fifth or external interval

divided. The pear-like form, somewhat shining surface, with the transverse lines forming the cells fine and close, and not clathrate, are the best characters I can give at present for its recognition.

Calopteron palpale (p. 10).

Taken by Mr. Champion in great profusion at Bugaba and on the Volcan de Chiriqui; the great bulk of the specimens being of the var. *b*; but a variety occurs which one might be tempted to name, in which the usual dark fascia and apical patch are faintly shadowed out, and the legs are more fuscous. The specimens of this variety are nearly all males of middle size; but I found one female possessing the same characters, and some with imperceptible gradations of tint to the quite yellow form.

9 (A). **Calopteron planulum.**

Ochreo-flavum; femoribus apice, tibiis tarsisque fuscescentibus; antennis nigris, articulis duobus basalibus infra flavescentibus. Long. 9–10 millim.

Hab. PANAMA, Bugaba (*Champion*).

Elytra moderately expanded behind, and in the male dehiscent at the apex, with four costæ; cells not very close; transverse costæ with a few short yellow setæ. The head is often slightly infuscate between the eyes. The thorax longer than wide, bell-shaped, with acute and rather prominent hind angles. There is sometimes a faint indication of a dark fascia on the outer margin. In size and colour a little like *C. unicolor*, Kirsch, according to a specimen so named for me by M. Bourgeois; but less parallel, with a much smaller thorax and darker antennæ and legs. Seven examples taken.

Calopteron flavipes (p. 11).

To the localities given, add:—GUATEMALA, Mirandilla, San Isidro, Pantaleon (*Champion*); PANAMA, Bugaba (*Champion*).

Calopteron juvenile (p. 12).

To the localities given, add:—PANAMA, Volcan de Chiriqui, Bugaba (*Champion*).

Taken in considerable numbers by Mr. Champion.

13 (A). **Calopteron costatulum.**

Calopteron costatulum, Kirsch, Berl. Zeit. 1865, p. 58 [1]; Bourg. Ann. Soc. Ent. Fr. 1879, p. 17 [2].

Hab. PANAMA, Bugaba, Volcan de Chiriqui (*Champion*), Matachin (*Thieme*).—COLOMBIA [2], Bogota [1].

Three specimens seem referable to this species; it is very near to *C. posticum*, but

larger; the elytra are pale yellow, with a more or less obsolete basal fascia, and the tips black; the legs yellowish, with infuscate knees, tibiæ, and tarsi; the body yellow. It is very doubtful to me whether this, and some allied species, can be maintained as distinct.

Calopteron triste (p. 13).

To the localities given, add:—MEXICO, Jalapa (*Höge*); GUATEMÁLA, San Gerónimo, Zapote, Cerro Zunil, Quiche Mountains (*Champion*); PANAMA, Volcan de Chiriqui (*Champion*).

Var. Prothorace fere toto humerisque flavis. ♀.

Hab. MEXICO (*Flohr*), Cordova (*Höge*).

15 (A). Calopteron funestius.

C. tristi affine, nigrum, elongatum, opacum; elytris lineis tribus paullo elevatis, intervallis crebre haud regulariter corrugatis. Long. 9–10 millim. ♂ ♀.

Mas. Antennis pectinatis vix flabellatis.

Femina. Antennis acute serratis.

Hab. MEXICO, Juquila (*Boucard, coll. Sallé*).

Allied to *C. triste*, but duller, entirely black, and with the intervals of the costæ (which are much less raised) with very close irregular transverse lines, scarcely ever forming cells.

Two specimens in Sallé's collection are all I have yet seen.

Calopteron rufulum (p. 13).

To the localities given, add:—PANAMA, Bugaba, Volcan de Chiriqui (*Champion*).

Taken commonly. Some examples are very small, and have the centre of the thorax and scutellum infuscate.

16 (A). Calopteron sinuatocolle.

Elongatum, nigro-piceum; prothorace elytrisque sordide flavis, illo disco carinato, medio infuscato, his tricostatis triente apicali nigro-fusco; ore, pectore et trochanteribus flavo-testaceis. Long. 9–10 millim. ♀.

Hab. PANAMA, Volcan de Chiriqui, Bugaba (*Champion*).

This is at first sight rather puzzling from its resemblance to species of the *C. matutinum* group. It has, however, an entire carina to the thorax, the sides of which are bisinuate, much as in *C. rufulum*, to which it appears related. The base of the thorax is bisinuate, the middle being angularly produced to meet the carina, and not notched. The elytra are very slightly infuscate on the suture at the base, and the apical patch leaves the margin pale for some distance towards the apex.

The antennæ of the female are acutely serrate.

Only three specimens, and those all females, have been detected by me as yet among the vast number of Lycidæ collected in Chiriqui by Mr. Champion.

Calopteron obliquum (p. 14).

The specimens from Chontales referred by me to *C. obliquum* I now separate; and as I have not seen *C. obliquum*, Say, from there, the habitat given must be removed and transferred to the species now described at *C. bifurcatum*.

18 (A). Calopteron bifurcatum.

Lineare, nigrum; prothoracis lateribus et margine frontali elytrorumque dimidio basali (sutura prætermissa) ferrugineis; prothoracis carina fortiter elevata postice tenuissime canaliculata, basi prominula altius elevata, fortiter bifurcata. Long. 5–6½ millim.

Hab. NICARAGUA, Chontales (*Janson*); PANAMA, Bugaba (*Champion*).

Var. Fere tota nigra; elytris basi thoracisque limbo piceis.

Hab. PANAMA, Volcan de Chiriqui (*Champion*).

There is no difficulty in separating this from *C. obliquum* if the smaller size and differences in the carina of the thorax are observed. From *C. suturale* it differs in the greater amount of black of the elytra, but it resembles it in the formation of the thoracic carina, which is, however, more strongly developed here.

18 (B). Calopteron suturale.

Lineare, nigrum; prothoracis lateribus et fronte marginali elytrisque ochreis, his sutura ad basin apiceque nigris; elytris costis quatuor, prima et tertia vix distinctis, secunda et quarta fortiter elevatis. Long. 5–8 millim. ♂ ♀.

Mas. Antennis acute serratis.

Femina. Antennis serratis.

Hab. PANAMA, Volcan de Chiriqui (*Champion*).

Head black; thorax with a simple carina, but the base elevated in the middle, and the carina notched here so as to appear bifurcate. Elytra linear, with two double and one single row of scalariform well-marked cells; the second and fourth costæ much raised. Legs, antennæ, palpi, and body black; the central portion of the thorax and carina, the scutellum and suture, as far as the middle, and apex of the elytra also dull black; the palpi are yellow at their bases, and the trochanters and bases of the femora are more or less tinted internally with the same colour. A large number of specimens were collected by Mr. Champion. This species is allied to *C. obliquum* and more nearly to *C. melanurum*, Kirsch; I believe it, however, to be distinct from the latter, and that among other differences the more strongly raised alternate costæ and the black apical joint of the antennæ will distinguish it.

The antennæ are serrate in both sexes, rather more acutely so in the males, which are more linear, and usually smaller than the females.

18 (c). **Calopteron rubrotestaceum.** (Tab. XI. fig. 3.)

Calopteron rubrotestaceum, Bourgeois, Ann. Soc. Ent. Fr. 1879, p. 23 [1].

Hab. Panama, Volcan de Chiriqui (*Champion*, ♀).—Colombia, Medellin.

Resembles *C. pennatum*, but the elytra are unicolorous, and of a dull brick-red colour. In our examples they are not infuscate round the scutellum as in those described by M. Bourgeois; but I have little doubt they pertain to the same species, which hardly differs from *C. pennatum* except in colour. Five specimens, all females.

Calopteron lineare (p. 14).

To the localities given, add:—Guatemala, El Tumbador, Cerro Zunil (*Champion*); Panama, Volcan de Chiriqui (*Champion*).

Var. Elytris apice nigris. (*Calopteron tenue*, Gorham ined. Tab. IV. fig. 5.)

Hab. Nicaragua, Chontales (*Belt*, *Janson*).

A great number of this species were met with by Mr. Champion in Chiriqui. The cells are often dark with pale costæ, especially towards the apical half of the elytra; and in one specimen from El Tumbador this fuscous black colour extends over the apical two-thirds, thus connecting the type form with the variety with a black apical third.

Calopteron terminale (p. 14).

To the localities given, add:—Panama, Volcan de Chiriqui, Bugaba (*Champion*).

Three specimens, two male and one female, maintain the characters given by me for this species; the sinuation of the sides of the thorax is similar to that of *C. rufulum*. It appears rare, and is easily overlooked among *C. lineare*, &c.

One male specimen from Chontales, taken by Belt, has the apical third of the elytra infuscate. A typical female appears to have been taken at the same time.

20 (a). **Calopteron socium.**

Calopteron socium, Kirsch, Berl. Zeit. 1865, p. 59 [1].

Hab. Guatemala, Cerro Zunil, San Isidro, El Reposo, Purula, El Tumbador, Zapote, Teleman (*Champion*); Nicaragua, Chontales (*Janson*); Panama, Bugaba, David, La Caldera, Volcan de Chiriqui (*Champion*).—South America; Colombia, Bogota [1].

A species easily to be recognized by its thorax being carinate in front, and channelled behind, much as in *Plateros*; but the elytra have only four costæ, and the intervals with large squarish cells. The specimens met with by Mr. Champion in Chiriqui have the legs, for the most part, almost wholly yellow; it varies, however, in this respect—they are sometimes almost black with only their bases yellow, as in the specimens from Guatemala. The head, thorax, elytra, scutellum, two or three apical joints of the

antennæ, and breast are yellow. The variety with pale legs was met with in profusion by Mr. Champion in Chiriqui.

Calopteron ichnoides (p. 15).

To the localities given, add:—PANAMA, Bugaba (*Champion*).

Calopteron mimicum (p. 15).

To the localities given, add:—PANAMA, Bugaba, Volcan de Chiriqui (*Champion*).

Var. Elytris totis nigris.

Hab. MEXICO, Oaxaca, Yolos (*coll. Sallé*).

22 (A). **Calopteron simulator.** (Tab. XI. fig. 4, ♂.)

Nigrum, parum nitidum, gracile; elytris pone medium leviter ampliatis, tricostatis; prothoracis marginibus elytrorumque limbo laterali ante apicem desinente, tenuiter flavis; prothorace carinato, margine antico paullulum elevato; antennis articulis linearibus, tertio ad decimum longe flabellato pectinatis. Long. 5–8 millim. ♂.

Hab. GUATEMALA, Purula (*Champion*); PANAMA, Volcan de Chiriqui (*Champion*).

An elegant little species, very closely resembling *C. mimicum*, but more gracefully built, and often much smaller. The antennæ (of the male ?) are differently formed from those of *C. mimicum* or *ichnoides*, the joints not being compressed, but thin, and with long flabellate branches, from near the middle of each, from the third to the tenth. The elytra being tricostate separate it at once from either *C. mimicum* or *ichnoides*. A further distinction between this species and *C. mimicum* is that the margin here is itself pale to within about a third of the apex; in the latter it is the humeral costa *above* the margin [below the shoulder itself] which is pale. A series of specimens were secured by Mr. Champion; these vary considerably in size and appear to be all males. A specimen from the Volcan de Chiriqui is figured.

Calopteron difficile (p. 16).

To the localities given, add:—PANAMA, Volcan de Chiriqui (*Champion*).

Calopteron miniatum (p. 16).

To the localities given, add:—PANAMA, Volcan de Chiriqui (*Champion*).

Only the specimens (two in number) from Caché, referred to by me, really belong to it; the one from Rio Sucio is to be referred to *C. decipiens*, which exactly resembles it in size and colour, but has only three costæ. Mr. Champion found both sexes of *C. miniatum* in Chiriqui.

26 (A). **Calopteron rubricolle.** (Tab. IV. fig. 4, ♀.)

Elongatum, nigro-fuscum; prothorace miniato, antice carinato, carina postice minute divisa, basi medio minute

excisa, coleopterorum latitudine, lateribus antice fortiter angustatis valde reflexis ; elytris tricostatis, costis basi flavescentibus, intervallis leviter obsolete reticulatis, tertio per lineam vix diviso. Antennis compressis, vix serratis. Long. 13 millim. ♀.

Hab. Mexico (*Sallé, coll. Sturm*), Mexico city (*Höge*).

This species, though belonging to the same section of the genus as *C. difficile* and about equal in size to the largest females of that species, differs in the structure of the thorax, which is larger and wider, and the carina, though divided, is not open to the base, but unites again at the point where the excision of the base meets it. The reticulation of the intervals is similar to that of *C. difficile* or *C. miniatum*, viz., very fine, irregular, and obsolete. Only two specimens have yet been found by me among the large numbers of *Caloptera* I have seen, and they are both females. The one from Sallé's collection is figured.

28. **Calopteron notatulum.** (Tab. XI. fig. 5.)

Nigrum ; prothoracis lateribus elytrisque dimidio basali læte aurantiaceis, his postice paullulum ampliatis, tricostatis, plaga scutellari nigra ; antennis corporis fere longitudine, serratis, articulo apicali flavo. Long. $8\frac{1}{2}$–9 millim.

Hab. Guatemala, Pantaleon, San Isidro (*Champion*) ; Panama, Bugaba, Volcan de Chiriqui (*Champion*)

Not differing very strongly from *C. tricostatum*, but the clear yellow apical joint of the antennæ, in addition to the well-marked scutellar patch, are, I think, indications of a distinct species ; the thoracic carina is very finely divided on its summit for the basal half, and the base is finely notched. It is also very closely allied to the following species [*C. decipiens*], from which it differs, however, in colour. The specimen figured is one from Bugaba. About a dozen examples were met with. That from Pantaleon has the scutellar patch larger and widened behind.

29. **Calopteron decipiens.** (Tab. XI. fig. 7.)

Nigrum ; prothoracis lateribus elytrisque miniatis, his tricostatis, pone medium paullo ampliatis, sutura basi nigricante, intervallis sat distincte irregulariter areolatis. Long. 8–11 millim. ♂ ♀.

Hab. Costa Rica, Rio Sucio (*Rogers*) ; Panama, Volcan de Chiriqui (*Champion*).

This insect precisely resembles *C. miniatum* in size and colour ; it is of course immediately distinguished if the *three* costæ are noticed, the third interval being quite undivided longitudinally. It is also more expanded behind the middle, the thoracic carina is more finely divided near the base, and the transverse reticulation of the elytra is much more distinct. A large series of this species were taken by Mr. Champion. The single specimen from Costa Rica is a female, and was formerly confounded by me with *C. miniatum*.

30. **Calopteron imitator.** (Tab. XI. fig. 6.)

Nigrum; prothoracis lateribus strigaque humerali flavo-testaceis; thoracis carina postice tenuiter divisa; elytris obsoletius reticulatis, quadricostatis; antennis corporis longitudine. Long. 6–9 millim. ♂ ♀.

Hab. GUATEMALA, Lanquin, Zapote, Dueñas, Cerro Zunil, Cahabon, Panima, San Juan in Vera Paz (*Champion*); PANAMA, Bugaba, Volcan de Chiriqui (*Champion*).

When the section to which this species belongs is recognized its separation is easy, the division of the thoracic carina being evident enough in most specimens; otherwise it may be confounded with *C. mimicum*, and its allies. The antennæ are long and compressed, and but little serrate in either sex. A pair were found by me still united after being mounted on card, the male being much smaller and concealed under the wings of the female. The front margin as well as the sides of the thorax is often yellow. The elytra have sometimes only the humeral costa, at others a wide stripe embracing the margin, yellow. A Bugaba specimen is figured.

31. **Calopteron (?) debile.**

Depressum, nigro-fuscum; prothorace subquadrato antice breviter carinato, carina in medio per fossulam ad basin divisa, disco utrinque infuscato; elytris sericeo-pubescentibus, ad basin et marginem flavescentibus, lineis quatuor elevatioribus intervallis regulariter quadrato-reticulatis, pedibus basi testaceis. Long. 5 millim.

Hab. PANAMA, Matachin (*Dr. O. Thieme, O. Schunke*), Volcan de Chiriqui (*Champion*).

At first sight this little insect would be taken for a *Plateros*, especially as the thorax is impressed with a long lanceolate fossa with a very short carina at the apex; but on studying it we find there are only five rows of cells on the elytra; the antennæ are compressed; the fossa is not impressed on a flattish disc, as in *Plateros*, but its sides are the divided carina, and reunite at the base. Two or three joints at the base of the antennæ are yellow; the suture, base of the elytra, and margin for some distance below the middle are of a bright straw-yellow, clothed with scales and short hairs. A series of this species were forwarded me by M. R. Oberthür for determination.

This species, and some others, can only be retained in the genus *Calopteron* till appropriate divisions can be made for all the species having divided thoracic carinæ—that is to say, those in Section B of this work. The thorax is not, however, similarly channelled or fossulate in all these species, and other characters will no doubt enter into the analysis.

32. **Calopteron plateroides.**

Nigrum, depressum, parallelum; prothoracis lateribus et margine frontali, elytrorumque dimidio basali (sutura prætermissa) læte ferrugineis; antennis serratis, articulis duobus apicalibus flavis; elytris seriebus quinque concinne areolatis, interstitiis æqualiter elevatis; prothoracis disco canalicula haud antice vel postice aperto, diviso. Long. 5 millim.

Hab. Guatemala, Cubilguitz (*Champion*); Panama, Bugaba (*Champion*).

Allied to *C. debile*, and differing from it chiefly in having the yellow shoulder-stripe of a richer rusty yellow and more distinctly defined, the black portions of the elytra more intense, and the two apical joints of the antennæ yellow. The femora at their bases, and the trochanters, are yellow.

This insect almost exactly simulates *Plateros bugabensis* in size and pattern; it may, however, be superficially known by its brighter colour.

PLATEROS (p. 19).

Since my description of the species of this genus in the first part of this volume, a very large number of specimens belonging to it have been collected by Mr. Champion. I have also extended my acquaintance with the genus, which I now regard as the existing representative of the prototype of the family. Dr. Leconte has given a summary of the species, he regards as referable to it, found in the United States of North America (Trans. Amer. Ent. Soc. ix. March 1881). According to my own view, *humeralis*, Fabr., and *trilineatus*, Melsh., retained by him in the genus *Eros*, Newm., should be referred to *Plateros*. Dr. Leconte recognizes the difficulty of defining the species, which, he very aptly remarks, are plastic. The remark, however, might well be extended to other genera, as, for instance, to *Calopteron*. The difficulties, however, are not greater or less than we meet with in English Coleoptera, for instance among the Carabidæ.

The males in this genus seem rarer than the females; I have now been able to study the males of many of the species from specimens collected by Mr. Champion on the Volcan de Chiriqui. The apical segments of the abdomen are formed as usual in this family; the seventh is cut out in a small rounded emargination, while the eighth is elongate and embraced by the dorsal pygidial plate, which is visible on the ventral side, on each side of the apical. The antennæ differ scarcely at all from those of the female; they are perhaps a little longer and a little more acutely serrate. The head is more prominent, and the eyes sometimes larger. The prothorax is narrower, and with more acutely produced hind angles. The colour is generally very constant; the species are differentiated by the greater or less expansion of the elytra, the size and degree of serration of the antennæ, &c. I have not found it necessary to alter my views upon the species, but it will be as well to give some further characters in a tabular form for the separation of the most difficult species.

1 (A). **Plateros hogeanus.**

Niger; prothoracis lateribus elytrisque ochraceis, his sutura (apice prætermisso) nigrescente. Long. 12 millim.

♀.

Hab. Mexico, Cordova (*Höge*).

Of the same shape and with similar characters to *P. seminiger*, excepting that the elytra are of an ochraceous yellow instead of brick-red and have no black at their apex. I only hesitate to consider it as a variety of that species, because differences of colour of this kind are usually specific characters in this family, and I have yet only been able to examine a single female specimen.

Plateros bourgeoisi (p. 19).

To the localities given, add :—MEXICO, Oaxaca (*Höge*).

Two specimens with the humeral stripe rather wider than in the type.

Plateros evanidus (p. 20).

Var. Pedibus testaceis, tibiis tarsisque infuscatis.

Hab. GUATEMALA, Purula, Chacoj, Teleman, Mirandilla (*Champion*); PANAMA, Volcan de Chiriqui, Bugaba (*Champion*).

Plateros apicalis (p. 20). (Tab. XI. fig. 9, ♀.)

To the localities given, add :—PANAMA, Volcan de Chiriqui, Bugaba (*Champion*).

The original description refers to the female; a large number of specimens of a *Plateros* which are, I believe, all referable to the same species have since been found by Mr. Champion, and present a peculiarity I have not observed before in this genus, viz., that while the females agree with the type in having the apical joints of the antennæ pale, those of the males are (as far as I have yet ascertained) wholly black.

The males are usually smaller than the females, four and a half to five millimetres in length; and the proportion of black on the elytra very variable—sometimes more than half the suture, sometimes only the apex. The ground-colour of the elytra is brown or sordid yellow; it is never brightly coloured. The thorax has a deep punctiform sulcus near the base—it often varies in length even in the same sex; and, unless I am deceived, the eyes are prominent, and the front of the head disclosed in some female specimens as much as in the males. In one female the antennæ are black at the apex.

This species, and *P. luridus*, were identified by me with specimens in my own collection so named by M. Bourgeois, but of which I believe no descriptions have been published. They are more parallel and longer species than their allies. *P. evanidus* has the body nearly always black. In *P. apicalis* the middle of the sterna between the coxæ is sometimes, the scutellum rarely, yellow.

Great numbers were taken by Mr. Champion.

Plateros luridus (p. 20).

To the localities given, add :—GUATEMALA, Purula, Chacoj (*Champion*); PANAMA, Bugaba (*Champion*).

Scutellum generally yellow, as well as the greater part of the breast, often also the femora. It is a longer species than *P. rubricatus*, and in addition has the apical joint of the antennæ yellow.

Taken in profusion at Bugaba.

Plateros lateritius (p. 21).

To the localities given, add:—PANAMA, Volcan de Chiriqui (*Champion*).

Distinguished, among other characters, by the larger size, more widened elytra, wholly black body and appendages, and black vitta on the thorax. There is a specimen of, what I consider, a variety, taken by Mr. Champion in Chiriqui, which has the alternate costæ more raised, the suture black, and the thoracic vitta divided. Dr. Leconte (Trans. Am. Ent. Soc. 1881, p. 26) confirms my conjecture that this insect is not the same as *Lycus sanguinipennis*, Say, which M. Bourgeois seemed to have considered to be a *Plateros*, but which is a rostrate species belonging apparently to *Lycostomus*. It would, however, be of little use to attempt to refer any particular species of *Plateros* to M. Bourgeois's notice under that name; several closely allied species were contained in M. Sallé's collection.

8 (A). **Plateros forreranus.** (Tab. XI. fig. 8.)

Flavo-testaceus; antennis, vitta prothoracica, scutello elytrorum fascia subbasillari ad suturam latiori, trienteque apicali, femorum apice, tibiis tarsisque nigris; abdomine picescente, basi in medio testaceo; antennis fortiter serratis. Long. 8–11 millim. ♂ ♀.

Hab. MEXICO, Presidio, Ventanas (*Forrer*); GUATEMALA, San Isidro (*Champion*).

Antennæ acutely serrate, not differing perceptibly in the sexes. Elytra moderately widened towards their apices. Head a little infuscate, antennæ black. Thorax with an indistinct carina in front, especially in the female, the central vitta not always prolonged to the front. Elytra ferruginous, paler in the middle, with a broad fascia touching the scutellum near the base, and the apical third smoky black. Body beneath, except the abdomen, testaceous.

This is one of the most prettily marked species of the genus *Plateros* I have seen; it is like *P. bogotensis*, and distinguished from it by the much wider central yellow band across the elytra, and by the yellow body. The specimen figured is from Presidio.

Plateros terminalis (p. 22).

To the localities given, add:—PANAMA, Volcan de Chiriqui, Bugaba (*Champion*).

Near *P.* (*Eros*) *canaliculatus*, Say; but with the antennæ longer and wider, the apical joint yellow or fuscous. The thorax has no carina in front, but is rather irregularly rugose, the rugæ in the middle being longitudinal; the channel is open behind, the base being thus emarginate in the centre.

11 (A). **Plateros infernus.**

Ater; prothorace subnitido, lateribus late rufis angulis posticis acutis, disco ad marginem anticam subrugose punctato haud carinato, basi obsolete canaliculato, in medio parum elevato, haud emarginato; elytris æqualiter punctato-striatis, versus apicem leviter ampliatis; antennis sat longis, articulis quarto ad undecimum duplo fere longis quam latis. Long. $6\frac{1}{4}$–$7\frac{3}{4}$ millim. ♂ ♀.

Hab. PANAMA, Volcan de Chiriqui, Bugaba (*Champion*).

The species of this group are extremely difficult to separate, and unless the structure of the disc of the prothorax is studied together with the proportion of the joints of the antennæ, as well as the general facies, it is almost a hopeless task. In the present species the thorax is short and small in the male, wider and with more produced hind angles in the female. The absence of a carina in front of the thorax, the longer antennæ, the duller elytra (which are more widened behind than in most of its allies) will distinguish it from *P. canaliculatus*, Say, which it resembles in its black elytra, with scarcely any trace of a shoulder-stripe. From *P. terminalis*, to which it is closely allied in the thoracic sculpture, the more expanded elytra and black apical joint of the antennæ will most readily separate it. A good many specimens were taken by Mr. Champion.

11 (B). **Plateros erebus.**

Ater, subnitidus; prothorace nitido profunde sulcato, lateribus angustius rufis, angulis posticis subrectis; elytris subparallelis, versus apicem vix expansis, interstitiis alternis elevatioribus; humero parum elevato tenuiter testaceo; antennarum articulis intermedio latiusculis, subquadratis. Long. 6–$6\frac{1}{4}$ millim.

Hab. GUATEMALA, Cerro Zunil (*Champion*); PANAMA, Bugaba (*Champion*).

Chiefly separated from *P. terminalis* on account of the black antennæ. It is often as small as *P. striatus*; the quadrate thorax, with a deep straight sulcus extending frequently to near the front from the base, will best distinguish it. Taken abundantly at Bugaba, Chiriqui.

Plateros striatus (p. 22).

Var. To the localities given, add :—PANAMA, Volcan de Chiriqui, Bugaba (*Champion*).

Taken abundantly at an altitude of 3500 to 4000 feet. The thorax has acute hind angles, narrows towards the front, and has a short basal fovea with a transverse ridge on each side.

Plateros flavicollis (p. 23).

To the localities given, add :—PANAMA, Volcan de Chiriqui (*Champion*).

Occurs with *P. striatus*, but much less commonly.

14 (A). **Plateros carbonarius.**

Aterrimus; prothorace quam elytra angustiore, subnitido tenuiter piceo-marginato, disco inæqualiter obsolete canaliculato, antice subrugoso punctato; antennis leviter serratis, articulo secundo parvo, tertio brevi,

quarto tribus basalibus subæquali. Elytris longis, costis quatuor elevatis, intervallis confluenter subrugose biseriatim punctatis. Long. 8–8½ millim.

Hab. GUATEMALA, Sinanja valley (*Champion*).

Distinguished among its allies by the nearly black thorax and by the length of the elytra. The antennæ are black, with the third joint shorter than in *P. terminalis*. The thorax has no carina; the sides of the channel are obsoletely quadrituberculate. Three specimens have occurred.

14 (B). **Plateros fusiformis.**

Niger, subnitidus; prothorace flavo, disco nigrescente; antennis latiusculis, vix serratis; elytris antice posticeque angustatis, interstitiis alternis distincte elevatis, intervallis biseriatim irregulariter cellulatis. Long. 7–8 millim. ♂ ♀.

Var. Thorace toto flavo.

Hab. GUATEMALA, San Gerónimo, Purula (*Champion*); PANAMA, Volcan de Chiriqui (*Champion*).

The distinguishing character of this species is the manner in which its elytra widen gradually from the shoulders to the middle, and from there narrow to the apex. This combined with the sculpture, which looks as though the elytra were sulcate, gives it a very different appearance from any other species. Of five specimens from Chiriqui two are of the variety, the other three having the disc of the thorax black. The sulcus is roughly formed, more or less elongate, while hardly any trace of a carina can be seen. The examples from Purula have darker thoraces, the lateral limb only being pale; they are also smaller.

15 (A). **Plateros bugabensis.**

Fumeo-niger, subopacus; prothorace nitidulo lateribus testaceis; elytris plaga humerali, plus minusve producta, brunnea. Long. 5–5½ millim. ♂ ♀.

Hab. PANAMA, Bugaba, David (*Champion*).

Closely allied to *P. apicalis*; the antennæ are concolorous in both sexes and less pubescent; the thorax has scarcely any trace of a carina, but a wide not well defined basal channel, and the elytra have a wide shoulder stripe, with a broadly black suture, and more of the apical half black than in *P. apicalis*. The females of this, and of some other species, may be known by the thorax having a longer and deeper central channel, with the hind angles less produced.

A large number of this species were found at Bugaba.

Plateros ochraceus (p. 23).

To the localities given, add:—NICARAGUA, Chontales (*Belt*); PANAMA, Volcan de Chiriqui, Bugaba (*Champion*).

Taken abundantly on the Volcano of Chiriqui at the altitude of 2500 to 4000 feet, sparingly at Bugaba. This species and *P. rubricatus* should be placed following *P. luridus*. It is a most difficult species to define, and more variable than its allies. It will, I think, be recognized by its red-ochre colour, which is sometimes nearly vermilion shading into yellow, often in the same specimen; also by its size, which never reaches that of the larger specimens of *P. evanidus*. The large series now sent enables me to amend my original description, which was taken from specimens from Cubilguitz alone. The amount of black on the disc of the thorax is very variable, from a broad vitta, the channel itself being black, to a mere speck at the end of the channel. The suture is black in many specimens from Chiriqui, but usually only for a short distance below the scutellum, and the latter is black in most of these specimens. Two specimens, taken at an altitude of 4000 to 6000 feet, have the apex of the elytra as well as the suture black. This is a very puzzling form, but I cannot separate these individuals from others from the same altitude with only the suture black.

Plateros rubricatus (p. 24).

To the localities given, add:—PANAMA, Bugaba, David (*Champion*).

A good series of this species were met with; it occurs at lower elevations than its near allies, *P. luridus* and *P. evanidus*. It is a broader species than either. The males have the antennæ longer than the females, but otherwise there is little difference between them excepting in the terminal segments of the abdomen, which are as usual in the whole family.

A variety occurs in which the elytra are obscurely marked with fuscous streaks, the first of which is near the suture.

Plateros mexicanus (p. 24).

The males are much narrower than the females and more parallel. Three other specimens from Sallé's collection are now referred by me to this species.

Plateros patiens (p. 25).

To the locality given, add:—GUATEMALA, Coatepeque, El Reposo (*Champion*).

Three more specimens of this species have occurred, and these tend to confirm my belief in its specific distinctness. The type described is a female: the two specimens from El Reposo are, I consider, males of the same species; they are smaller, and their thoraces are marked with black along the central channel; in one the scutellum is yellow, in the other black, as it is in the specimen from Coatepeque; otherwise they exhibit no important difference.

Plateros stramineus (p. 25).

To the localities given, add:—GUATEMALA, Cerro Zunil, San Isidro, Zapote (*Champion*); PANAMA, Volcan de Chiriqui, Bugaba, David (*Champion*).

Several specimens have been found. The males have remarkably long antennæ reaching to the end of the body, and large prominent eyes; it is an aberrant species. The apical joints of the antennæ are pale in some specimens, and most of those recently found are larger than those I had seen before, being six and a half millimetres long.

TEROPLAS, gen. nov. (to follow *Plateros*, p. 25).

Plateroti affinis; elytra simili modo decemstriata, et interstitiis alternis leviter elevatioribus. Oculi maris globosi, in utroque sexu sat prominuli. Antennæ, maris valde ramosæ, flabellis tenuibus simplicibus, quam articuli proprii longioribus, e basi ortis; feminæ corporis fere longitudine, acute serratæ. Prothorax margine frontali sinuata, fronte prominula, disco prope basin fossula subpunctiformi, margine reflexo, integro.

A new genus must be granted for an insect which, resembling *Plateros* in many of its characters, has nevertheless pectinate antennæ in the male. The distinction between this and some of Mr. Waterhouse's genera, as, for instance, *Ditoneces*, is not easily expressed in a short description. It must suffice here to say that the Eastern genera generally are well differentiated, and the one named has the branches of its antennæ pubescent, and arising at a very acute angle from the joints. There is no species of *Plateros* known to me at present showing any tendency to such disparity between the sexes as we see here.

1. **Teroplas fusculus.**

Calodadon fusculum, Gorham, *anteà* p. 29.

Niger, subopacus; prothoracis lateribus et margine antico, elytrorumque callo humerali rufis. Long. $6\frac{1}{2}$–8 millim. ♂ ♀.

Mas. Antennis gracilibus, articulis tertio ad undecimum ramum tenuem e basi emittentibus.

Femina. Antennis quam corpus paullo brevioribus, articulis acute angulariter serratis.

Hab. NICARAGUA, Chontales (*Belt*); PANAMA, Bugaba, Volcan de Chiriqui (*Champion*).

Exactly resembling *Plateros terminalis* and *P. erebus* in colour, this insect is at once to be recognized by the ramose antennæ of the male, while the female sex will be known by the long serrate antennæ suggestive of an alliance to *P. stramineus*. The males, four in number, were found all at Bugaba. The description of *Calodadon fusculum* at p. 29 of this volume was made from a unique male specimen in poor preservation and not fully coloured. I am not certain still whether the supposed females actually pertain to the species.

CALLEROS (p. 25).

Species which I find may be referred to this genus, or section of *Plateros*, have occurred now of various colours from black to yellow. The best distinguishing character (in addition to general facies) that I can offer is the simple structure of the antennæ, which have elongate joints, with their inner apical angles scarcely acute.

5. **Calleros aterrimus.**

Ater, subnitidus; elytris parallelis; prothorace brevi antice paullo angustato, disco inæquali basi obsoletius fossulato. Long. 6–6½ millim.

Hab. PANAMA, Volcan de Chiriqui, 2000 to 6000 feet (*Champion*).

In the Central-American series only one species is known to me as yet which is wholly black, or very nearly so, viz. *P. carbonarius*; from that the present species is at once distinguished by its evenly striate elytra and long thin linear antennæ, which have the joints from the fourth onwards three times as long as wide and a little pubescent. *C. aterrimus*, however, almost exactly resembles the Japanese *Plateros coracinus*, the *only* apparent differences being that the latter has serrate antennæ, and a duller, more quadrilateral thorax, with the fossa more clearly defined and open behind.

Many specimens of this species were met with, chiefly at the higher altitude.

6. **Calleros filiformis.**

Elongatus, parallelus, ater; capite, prothorace elytrisque ochraceis, scutello cum prothoracis disco interdum infuscato. Long. 6 millim.

Hab. GUATEMALA, San Gerónimo, Volcan de Atitlan (*Champion*); PANAMA, Volcan de Chiriqui (*Champion*).

Head ochreous, infuscate in darker examples; antennæ about two thirds of the length of the body, the third joint shorter proportionally than in *C. aterrimus*, but the same as in *C. sinanjæ*; the following joints elongate and equal in length. Thorax narrow with parallel sides, and rounded in front; the disc faintly carinate in front, with an elongate sulcus behind sometimes deeper in the middle and before the base, and with its sides tumid and indistinctly fossulate on each side. Elytra very narrow and finely striate, the alternate costæ a little raised. Three examples are all I have seen as yet of this species.

CALODADON (p. 27). [CALOCLADON, Tab. II. fig. 20.]

The former spelling was overlooked in the proof; that on the Plate expresses the intended form of the name.

Calocladon testaceum (p. 28).

To the localities given, add:—PANAMA, Volcan de Chiriqui, Bugaba (*Champion*).

Several specimens of both sexes were found; all, however, have the thorax with a more or less distinct black vitta, sometimes the base of the suture, and in one case two linear dots before the middle of the elytra, blackish. The Guatemalan specimens from San Gerónimo and Zapote, alluded to under this species, do not pertain to it, but to *Plateros stramineus*. It as, therefore, as yet, only occurred in Nicaragua and in the State of Panama.

1 (A). **Calocladon chiriquense.**

Subparallelum, nigrum; prothorace elytrisque sordide flavis, his in medio paululum contractis, costis duabus elevatioribus, sutura ad basin nigricante, illo vitta mediana nec apicem nec basin attingente nigra; pedibus basi, antennarumque apice interdum flavescentibus. Long. 6–6½ millim. ♂ ♀.

Mas. Antennis flabellato-ramosis, ramis quam articuli plus duplo longioribus; oculis subglobosis valde prominulis.

Femina. Antennis compressis, acute serratis.

Hab. PANAMA, Volcan de Chiriqui, Bugaba (*Champion*).

Calocladon fusculum (p. 29).

This must be removed from the genus *Calocladon*, and is identical with the species which forms the type of a new genus *Teroplas*. The structure of the thorax is much more nearly that of *Plateros*, but the eyes are as in *Calocladon*. The antennæ are ramose, but the branches are fine, not flabellate as in this genus. The description given is correct, but the unique type was unsatisfactory, being apparently immature. I have redescribed it under *Teroplas* from another example.

2 (A). **Calocladon histrionicum.**

Niger; prothoracis lateribus humerisque flavis, prothorace antice carinato, in medio concinne ac distincte canaliculato, basi in medio prominulo haud alte elevato. Long. 7 millim. ♂ ♀.

Mas. Oculis sat prominulis, antennis flabellato-ramosis, ramis quam articuli triplo fere longioribus.

Femina. Antennis latis acute serratis.

Hab. GUATEMALA, Cerro Zunil, El Tumbador, Purula (*Champion*).

Var. Plaga humerali longius provecta.

Hab. MEXICO, Cordova, Playa Vicente, Tuxtla (*Sallé coll.*); GUATEMALA, Sinanja, Sabo, Purula (*Champion*).

This insect is nearly allied to *C. oculatum*, and females from Cordova seem to exhibit no other difference than that of colour, the form of the thorax and its channel being precisely similar. It is, however, the shoulders only of the elytra which are yellow, and in these specimens the species afford another almost exact resemblance to *Calopteron mimicum*, to which we have now quite a group of similarly coloured species. But the males are narrower than those of *C. oculatum*, the antennæ have the apical joint always black, and in the typical specimens from Cerro Zunil the elytra are nearly wholly black.

Calocladon pectinicorne (p. 29).

To the localities given, add :—PANAMA, Volcan de Chiriqui, Bugaba (*Champion*).

Met with in profusion by Mr. Champion at Bugaba; the specimens are mostly of a richer brick-red than in the type.

1 (B). Calocladon rubidum. (Tab. XI. figg. 13 ♂, 14 ♀.)

Nigrum; prothoracis lateribus elytrisque rufo-flavis, his sutura basi tenuiter nigra, thoracis disco antice carinato pone medium tenuissime canaliculato, basi bisinuato in medio prominulo. Long. 5–7 millim. ♂ ♀.

Mas. Antennis flabellato-ramosis, ramis quam articuli duplo longioribus; oculis mediocris.

Femina. Antennis latiusculis, serratis.

Hab. PANAMA, Volcan de Chiriqui (*Champion*).

Var. Elytris apice nigris.

Hab. PANAMA, Volcan de Chiriqui (*Champion*).

Not unlike *C. chiriquense*, but varying more in size, and differing in colour, the elytra being of a fine brick-red, almost carmine tint, shading off into yellow at the base. It is especially, however, by the fineness of the channel of the thorax that this species is distinguished from its nearest allies. In some specimens the carina (which is always distinct in front) is scarcely divided, except in the middle. The rows of cells on the elytra are somewhat indistinct, owing to scales with which they are clothed. The second and fourth costules are elevated as in other species of this genus. This species appears to frequent somewhat higher altitudes than *C. chiriquense*, at least I have not seen specimens from Bugaba. A small series were secured by Mr. Champion at elevations of from 3000 to 4000 feet. The variety with black tips to the elytra occurred in company with the type; both sexes were found.

Calocladon oculatum (p. 28).

To the localities given, add :—PANAMA, Volcan de Chiriqui, Bugaba (*Champion*).

A small series of about a dozen specimens of this were met with on the Volcan de Chiriqui, in company with the following species, which it so closely resembles that I did not at first separate them; it has, however, the thorax differently formed, being, like that of *C. testaceum*, narrowed towards the front, and with a distinct open channel; the eyes are much more globose and prominent in the male, and the antennæ have the apical joint black.

2 (B). Calocladon plumosum.

Nigrum, subparallelum; prothoracis lateribus, elytrorumque plus quam dimidio basali flavis, his sutura basi nigra; antennarum articulo ultimo maris, interdum duobus apicalibus feminæ, flavis; prothorace subquadrato angulis anticis obtusiusculis, disco carinato, carina pone medium tenuissime divisa. Long. 8 millim. ♂ ♀.

Mas. Antennis flabellato-ramosis, oculis magnis haud multo exsertis.

Femina. Antennis serratis.

Hab. Panama, Volcan de Chiriqui, Bugaba (*Champion*).

Found in considerable numbers by Mr. Champion in company with *C. oculatum*, from which it could not have been discriminated when alive. It is apparently a commoner species.

5. **Calocladon ephippium.** (Tab. XI. figg. 10 ♂, 11 ♀.)

C. oculato quoad formam congruens, nigrum; prothoracis lateribus elytrisque flavo-testaceis, his macula magna communi subtriangulari trienteque apicali nigris. Long. 8–9 millim. ♂ ♀.

Hab. Mexico, Cordova, Oaxaca (*Höge*); Guatemala, El Reposo, San Isidro (*Champion*); Panama, Bugaba (*Champion*).

The sexual characters, form of the thorax, and its carina and channel, agree with those of *C. oculatum*. The elytra have the alternate interstices equally raised. The black patch common to the elytra varies in size and a little in form. It usually widens out from the scutellum till it reaches the submarginal interstice, and it varies in the extent to which it is produced backwards or along the suture. A good series were obtained. The figures are from Bugaba specimens.

LINOPTES, gen. nov. (to follow *Calocladon*, p. 29).

Antennæ utriusque sexus serratæ, validæ, compressæ, corpore breviores. Prothorax planiusculus tenuissime carinatus, carina postice duplici, vix divisa; basi valde bisinuata medio sublobato emarginata. Elytra cellulis seriebus decem instructis.

This new genus differs from *Calocladon* in having the antennæ of the male only serrate, and also in the shape and structure of the thorax and its carina, which is so very finely divided behind the middle as rather to give the idea of its being double in that part, the sides meeting again at the base. The sexual characters of the abdomen are as usual; the seventh segment of the male is excised, showing a narrow conical eighth.

I have considered whether this could be referred to Erichson's genus *Emplectus*. I have not seen the typical species of that genus, viz. *E. bimaculatus*, a Peruvian insect. M. Bourgeois considers species which are very closely allied to the genus *Calocladon* of the present work to be referable to it; while Mr. C. O. Waterhouse refers to it *Calopteron socium* and allied species. I incline to the belief that an examination of the type will prove it to be different from any of these genera.

1. **Linoptes imbrex.** (Tab. XI. fig. 12 ♂.)

Depressus, postice paululum ampliatus, testaceus; capite, antennis, palpis, pedibus abdomineque plus minusve infuscatis; prothorax planiusculus antice angustatus, margine omni concinne reflexo, nitidulo, tenuiter carinato, carina pone medium tenuissime diviso, basi bisinuata angulis posticis acutis; elytris interstitiis alternis elevatioribus. Long. 11 millim. ♂ ♀.

Hab. Nicaragua, Chontales (*Belt*, ♂); Panama, Bugaba (*Champion*, ♂ ♀).

The specimen figured is the female one from Bugaba. Head with the eyes small in both sexes, black or pitchy; mouth, basal joint of antennæ, base of the palpi, and sterna yellow, the second joint so short as not to be easily seen. The abdomen in the two male specimens is nearly all yellow, and the legs are yellow, but mottled and clouded with fuscous. The abdomen in the female is fuscous. The scutellum is hardly emarginate at its tip. Only three specimens have come under my notice at present. This insect would be very readily confounded with *Calocladon testaceum*, unless the antennæ of the male and the very narrow divison of the carina were noticed.

CERATOPRION, gen. nov. (to follow *Linoptes*).

Caput minutum. Antennæ corporis longitudine, latæ, acute fortiter serratæ, 11-articulatæ, articulo secundo minuto, tertio obconico, parvo; sequentibus 4° ad decimum interne angulariter ampliatis, singulis quam caput majoribus; apicali lanceolato. Prothorax perparvulus antice fortius angustatus, marginibus reflexis, disco carinato, angulis posticis acutis. Elytris reticulatis, areolarum seriebus quinque.

The only genus to which this curious little species can be compared is the genus *Atelius* of Mr. Waterhouse, from Ceylon. The shape of the thorax is, however, more nearly that of his genus *Libnetis*. What the proper place of these abnormal genera should be, is still quite an open question. I place it here simply from not having at present come to a conclusion on the matter, but I think it will fall into the same group with *Calopteron*, many of the large species of which have the head and thorax very much reduced.

1. Ceratoprion serricorne.

Nigro-fuscum; prothorace antice fortiter angustato, lateribus perparum sinuatis, carinato, squamulis fuscis dilutioribus vestito; antennis fuscis, articulo secundo minuto testaceo, apicali flavescente. Long. vix 5 millim.

Hab. PANAMA, Bugaba (*Champion*).

Entirely fuscous-black, with the exception that the thorax is of a dingy fuscous yellow colour; and that the apical joint of the antennæ, as well as the very small second joint, is yellow. The elytra appear to be soft and thin, and are much twisted in drying. They are, however, "reticulate," as in *Calopteron mimicum* and the allied species, and have four raised costæ. Only two specimens have been found at present.

LYCINELLA, gen nov. (to follow *Ceratoprion*).

Caput minutum; antennæ quam corpus breviores, validæ, compressæ, pubescentes, fere simplices, 11-articulatæ, articulo secundo minuto ægre distinguendo, tertio parvo subquadrato, sequentibus quam hoc triplo longioribus. Prothorax transversus, trapezoideus, disco depresso, margine frontali et marginibus lateribus late elevatis, planiusculis, antice breviter canaliculato. Elytra subparallela, subrugosa, striis decem haud distinctis, ad apicem confusis, costis duabus elevatis.

1. **Lycinella opaca.** (Tab. XI. fig. 15.)

Nigra, opaca; prothoracis margine laterali et frontali late elevato, sanguineo; elytris costis duabus una humerali una discoidali elevatis ad apicem fere provectis, intervallis subrugosis. Long. 4–5 millim.

Hab. GUATEMALA, San Juan in Vera Paz, Tamahu (*Champion*); PANAMA, Volcan de Chiriqui (*Champion*).

This little species has at first sight apparently ten-jointed antennæ, but a very small second joint really exists. It presents many points of resemblance to the species of the genus *Taphes*, which inhabits the Eastern Tropics, especially in the structure and pubescence of its antennæ; but the thorax is quite differently formed. In addition to the two raised costæ mentioned in the diagnosis, this species has the alternate interstice next the suture a little raised, especially at the base.

Only four specimens have yet been seen by me, the one figured being from San Juan.

2. **Lycinella parvula.** (Tab. XI. fig. 16.)

Nigra, opaca; prothoracis margine laterali sat late, frontali tenuissime rufo, disco antice carinato, carina postice minute diviso; elytris paullulum ampliatis, opacis, costis humerali et discoidali nisi ad basin vix elevatis. Long. 4–4½ millim.

Hab. PANAMA, Bugaba, Volcan de Chiriqui (*Champion*).

I at first thought a separate genus should be made for this insect, as it differs from the preceding species in many minute details. The carina is divided behind, making a very small open cell, but this is not always visible. The antennæ are shorter, and quite simple. The elytra appear to be softer and expand more behind, but I now hesitate to give these differences more than specific rank. One specimen occurred in the hot low country at Bugaba, and is the one selected for the figure. The others were found at a higher elevation on the Volcan de Chiriqui.

LAMPROCERA (p. 29).

Lamprocera picta (p. 30).

Var. Elytris basi usque ad medium flavescentibus, interdum macula magna subhumerali nigra. (Tab. XI. fig. 17.)

Hab. PANAMA, Volcan de Chiriqui (*Champion*).

Two specimens, one with a lateral spot near the base of the elytra, the other with the basal half entirely brownish yellow, were met with. The latter so closely resembles the species I have identified as *L. castelnaui*, Kirsch [*cf.* Trans. Ent. Soc. 1880, p. 4], that I think possibly that species is the southern form of *L. picta*. My specimens, which I suppose to be *L. castelnaui*, are from Colombia, and are larger and exhibit some minor differences of colour and pattern. Mr. Champion informs me that these insects are sometimes found on the wing in the forests in the daytime.

HYAS (p. 30).

Hyas angularis (p. 30).

Leconte [Synopsis of the Lampyridæ of the United States, p. 33] has proposed a genus, *Tenaspis*, for this species on account of the antennæ being simple in both sexes, and (as he says) the "light organs" being wanting. In the specimens from Guatemala the abdomen is entirely black, as in my type; in the specimens from Mexico, from Sallé's collection, on the other hand, the apical segments are pale, and in one instance the whole ventral side of the abdomen is yellow, and all these specimens are smaller, and sometimes have the thorax wholly pale. They may therefore be specifically different, but the character is not generic. *Hyas angularis* of the type-form occurs, according to Leconte, in the United States, in Texas, and Northern Mexico.

Hyas semifusca (p. 31).

To the localities given, add:—GUATEMALA, San Isidro (*Champion*); PANAMA, Bugaba, Volcan de Chiriqui (*Champion*).

Var. Elytris totis ochraceis.

Hab. PANAMA, Volcan de Chiriqui, Bugaba (*Champion*).

About a dozen specimens of a small Hyas wholly ochraceous above occurred in Chiriqui, but they do not differ in any important respect from the dark *H. semifusca*, and are of both sexes. Two specimens intermediate in colour of the elytra were also found, one in the low country at Bugaba, one at the higher altitude.

PHÆNOLIS (p. 31).

Phænolis ustulatus (p. 32).

To the localities given, add:—MEXICO, Almolonga (*Höge*), Cordova (*Flohr*); GUATEMALA, Mirandilla (*Champion*).

Two specimens sent me by Señor Flohr from Mexico have the disc of the thorax with a blackish horse-shoe shaped mark, as the single specimen from Almolonga has also, with the scutellum black.

Phænolis ochraceus (p. 32).

To the localities given, add:—GUATEMALA, Cubilguitz, San Juan in Vera Paz; PANAMA, Bugaba, Volcan de Chiriqui (*Champion*).

Mr. Champion remarks that this insect is frequently taken on the wing in dark parts of the forest in the daytime.

ÆTHRA (p. 32).

Æthra despecta (p. 32).

To the localities given, add:—PANAMA, Bugaba, Volcan de Chiriqui (*Champion*).

All the specimens taken at Bugaba, and on the Volcan de Chiriqui, agree in having subpectinate antennæ, and as far as I can see in the structure of the abdomen. Specimens from Colombia in my own collection, which have the antennæ serrate and the disc of the thorax infuscate, are doubtfully a distinct species; one example quite agrees with the Chiriqui species. There remain but two specimens with simply serrate antennæ, viz. those from Cache, Costa Rica, and I now incline to think these are not properly assigned to the present species. Hence the female is not certainly known.

3. **Æthra brunnipennis.** (Tab. XI. fig. 19.)

Æthra brunnipennis, Gorh. Trans. Ent. Soc. 1880, p. 13[1].

"Nigra, subnitida; elytris brunneo-flavis, thorace canaliculato, semicirculari." Long. 10–11 millim. ♂?

Hab. PANAMA, Volcan de Chiriqui, Bugaba (*Champion*).

Head and thorax black, the former slightly impressed between the eyes, mandibles pitchy; antennæ nearly as long as the body, with their third to tenth joints acutely produced, so that the produced part is about equal to the joint in length. Thorax thickly punctured, margin reflexed and somewhat thickened, central channel ill-defined. Scutellum more shining than the thorax, its apex truncate. Elytra rusty yellow, almost exactly as in *A. despecta*. Legs black.

A series of specimens only varying a little in size were taken. I have a species rather closely allied to this, but with nearly simple antennæ, from Ecuador. This species was found on the wing in the daytime in the dense forest, and sometimes to be seen sitting on the leaves.

DRILOLAMPADIUS (p. 33).

Drilolampadius stolatus (p. 33).

To the localities given, add:—MEXICO, Jalapa (*Höge*); PANAMA, Bugaba, Volcan de Chiriqui (*Champion*).

Var. GUATEMALA, Las Mercedes, San Isidro (*Champion*).

Mr. Champion met with large numbers of both this and the following species in the State of Panama, from an examination of which I am able to supply the sexual differences and further details. In *D. stolatus* the antennæ of the male have the filaments not more than twice the length of the joints; those of the female are very much shorter, with rudimentary filaments. In *D. scutellaris* the males have very long filaments three to four times the length of a joint; the terminal joint is generally yellow. The colour is

variable in both species, but not exactly in a parallel manner. *D. stolatus* is black, with the side of the thorax and the greater part of the margins of the elytra yellow, and varies with the basal half of the elytra yellow with a black streak along the suture, while *D. scutellaris* (besides being scarcely costate) has the elytra either wholly fuscous black, or ochraceous yellow. Some examples have the thorax entirely yellow, and in such the scutellum and sterna, with the coxæ and femora, are also yellow.

Drilolampadius scutellaris (p. 33). (Tab. XI. fig. 20.)

To the localities given, add:—PANAMA, Bugaba, Volcan de Chiriqui (*Champion*).

This is altogether a larger and more convex species than *D. stolatus*. The specimen figured is a male of the variety, with yellow thorax and scutellum, from Volcan de Chiriqui; of sixty to seventy examples of this species collected in the same locality about half are of this form, while I have not found one *D. stolatus* similarly coloured. Very few females occurred with them. These insects are usually found on the wing during the early morning or towards evening in humid places in the forest.

MEGALOPHTHALMUS (p. 34).

Megalophthalmus godmani (p. 34).

To the localities given, add:—PANAMA, Volcan de Chiriqui (*Champion*).

3. **Megalophthalmus costatus.**

Megalophthalmus costatus, Casteln. Essai, p. 132.

Megalophthalmus obsoletus, Blanch. Voy. d'Orb. p. 123, t. 7. fig. 7; Gorh. Trans. Ent. Soc. 1880, p. 97.

Hab. PANAMA, Bugaba, Volcan de Chiriqui (*Champion*).—SOUTH AMERICA, Bolivia.

The specimens taken by Mr. Champion are very variable in colour, being either with the elytra black, with the margin pale in the middle, or yellow with the suture and the apical quarter black, or the suture only slightly infuscate; they agree, however, in all having the thorax with the disc black and with yellow sides and front. The specimens found at Bugaba all agree in having the elytra blackish with the lateral margins pale, and also in the thorax covering the head, while those from the higher elevation of two to three thousand feet have shorter thoraces which leave the head exposed as far as the eyes, and unless this is a sexual difference I think these will prove to be two species. It is three years since I examined the types of *M. costatus* and *M. obsoletus* contained in Guérin-Meneville's collection, now in the Brussels Museum, but my belief is that the Bugaba specimens agree with them, and if so the species has an exceedingly wide range. They were found by Mr. Champion sitting on leaves in forest pathways.

4. **Megalophthalmus collaris.** (Tab. XI. fig. 24.)

Megalophthalmus collaris, Guérin-Men. Rev. Zool. 1843, p. 18 [1]; Gorh. Trans. Ent. Soc. 1880, p. 98.

Hab. Panama, Volcan de Chiriqui (*Champion*).—South America, Colombia [1].

Taken in abundance by Mr. Champion in one spot, but he found it to be very local, by the side of a little stream in the forest at 4500 feet altitude. It emits a pale green bright light, and is rather rapid on the wing.

LUCIDOTA (p. 34).

12. **Lucidota incompta.** (Tab. XI. fig. 22.)

Elongata, nigra, supra ochracea; prothoracis disco nigro-piceo utrinque miniato, scutello nigro-piceo. Long. 14–16 millim. ♂ ♀.

Mas. Antennis longius flabellato-pectinatis, segmentis duobus ultimis pallide flavis.

Femina. Antennis acute serratis, segmento apicali flavo.

Hab. Panama, Volcan de Chiriqui 4000 to 6000 feet (*Champion*).

In form, and in the pectination of the antennæ, this species is not like any we have before recorded; it belongs to a section of the genus common in Brazil and other parts of South America, of which *L. flabellicornis*, F., is the type. It differs from any of that section known to me in its ochraceous or brown colour above. The head is black and shining, the whole of the body is black with the exception of the tips of the coxæ and bases of the trochanters, the point of insertion of the antennæ, the mandibles, the front margin of the metasternum, and apical segments mentioned, which are all yellowish. The thorax is yellow, roughly punctured, the centre of the disc pitchy black, smooth and shining, with a distinct vermilion patch on each side; the basal part of the black portion is extended transversely a little along but not touching the base. The centre of the disc is obsoletely impressed, scarcely channelled. The scutellum is pitchy black and shining. The elytra are generally unicolorous, rarely very faintly infuscate. A good series of these species was secured by Mr. Champion at a high elevation. Most of these specimens were captured either on the wing in the daytime in dark places in the forest, or by beating herbage along the forest margins.

13. **Lucidota fuscata.**

Oblonga, minus elongata, nigro-fusca, supra sordide testacea; prothorace lateribus pallide flavis, disco indeterminate infuscato, obsolete canaliculato, utrinque miniato. Scutello elytrisque infuscatis, his marginibus dilutioribus, obsolete costatis. Long. 11–12 millim. ♂ ♀.

Mas. Antennis compressis vix serratis; segmentis quinto et sexto rosaceis; apicalibus vel flavis vel medio infuscatis.

Femina. Antennis brevioribus.

Hab. Panama, Bugaba (*Champion*).

This is one of the species which, by its obscure colours and general appearance, so simulates a variety of other species as to render its discrimination a perplexing matter unless its generic characters are grasped. Thus it has a general and very close likeness

to several *Photini*, perhaps to *P. cinctellus* more than any other, also to some of the *Photurides* such as *Photuris lucidicollis*. Among the *Lucidotæ* its general appearance is that of *L. osculatii*. The following characters will, I think, distinguish it from any *Lucidota* yet described. The antennæ are simply compressed, very slightly serrate in the male only; they are entirely fuscous-black. The rosy-red colour of the fifth and sixth ventral plates is very conspicuous, and the fifth has two whitish raised spots; this rosy colour is also very conspicuous in the prosternum and internal structures of the prothorax, and is of course the source of the same vivid tint round the fuscous disc of the pronotum.

A very large number were taken by Mr. Champion in the forests of the "tierra caliente" at Bugaba, where it was very common in the rainy season, and often to be seen sitting on leaves in the daytime.

14. **Lucidota amabilis.**

Photinus amabilis, Gorham, Trans. Ent. Soc. 1880, p. 30, ♀ [1].

"Nigro-griseus; thorace albido, disco miniato vitta mediana ad basin latiori, nigro-piceo; elytris albo-subviridi concinne marginatis. ♀." Long. 7–11 millim. ♂ ♀.

Mas. Antennis longioribus, leviter serratis; segmento quinto macula parva rubida.

Hab. Costa Rica, Rio Sucio (*Rogers*)[1]; Panama, Peña Blanca (*Champion*).

This species was accidentally omitted altogether in the first part of this volume. The examination of four specimens captured by Mr. Champion, of which two are males, satisfies me it is a *Lucidota*; the long compressed slightly serrate antennæ of the male, together with the black abdomen with a single luminous point, are conclusive. It is easily recognized by the grey leaden elytra with a broadish white margin of even width from the shoulders to the apex, which has a greenish-yellow tint. The disc of the thorax is wholly pitchy in the Peña Blanca specimens, which were captured on the wing in the daytime in the dense forest at an elevation of 7000 feet.

15. **Lucidota xanthopleura.** (Tab. XI. fig. 21.)

Nigro-fusca, oblongo-subovata; prothorace flavo, disco miniato, immaculato, haud canaliculato; elytris mediocriter ampliatis, lateribus late flavo-marginati-fuscis; antennis serratis, articulis tribus ultimis pallide flavis. Long. $10\frac{1}{2}$–12 millim. ♂ ♀.

Mas. Antennis serratis, quam corpus paullo brevioribus; segmento penultimo albescente.

Femina. Antennis brevioribus minus serratis.

Hab. Panama, Volcan de Chiriqui (*Champion*).

This is a very distinct species belonging to a series with rather small thoraces, and well developed and somewhat expanded elytra. The thorax is even and shining, a few tubercles are noticeable on the disc, and sometimes even a faint carina; the antennæ of the male are three-quarters of the length of the body, or rather more simply serrate, with the three apical joints conspicuously pale; the legs are fuscous-black. The underside of the thorax is much tinted with rosy-red; but this appears not to be a

very luminous species. Mr. Champion met with this insect by sweeping Bambusaceæ in the virgin forest in the daytime, and only at 8000 feet elevation.

It is probable that the species of glow-worms which are most luminous are not generally to be found at large in the daytime; Mr. Champion's observations bear me out in this.

16. **Lucidota tincta.**

Nigro-fusca; elytrorum lateribus in medio, prothoracis margine antico et laterali, et antennarum articulis duobus apicalibus albidis; prothoracis disco miniato nigro-vittato, vitta ad basin cum macula parva conjuncta. Long. 8–9 millim. ♂.

Hab. Panama, Volcan de Chiriqui (*Champion*).

Very closely allied to *L. apicicornis* and perhaps a local form of that species. It differs, however, in uniformly having a thorax which is proportionally much smaller, with the black vitta and base more distinct. The underside is dark, with the legs pale at their bases, and the apex pale in an undefined manner.

17. **Lucidota sinuatocollis.**

Nigro-fumosa, opaca; prothorace albido, disco roseo parum distincte fusco-vittato, lateribus sinuatis antice angustatis, fronte producto; antennis corporis fere longitudine, compressis, leviter serratis, articulis duobus apicalibus albis. Long. 8 millim. ♂.

Mas. Segmento subapicali utrinque albido.

Hab. Panama, Volcan de Chiriqui, 2000 to 4000 feet (*Champion*).

This species has a good deal of resemblance to *L. tincta*, but more nearly still to *Photinus eöus*. It is, however, perfectly distinct from either, and will soon be recognized if the following points are attended to, viz. the two apical, or half the last but one, and the apical joint of the antennæ only are white. The thorax is pinkish red, not shining nor channelled, and of an ogival form; the sides contract a little before the base, the hind angles are acute, a little produced backwards. The luminous parts are only two very small spots on each side of the subapical segment: the latter character alone will separate it from the two species mentioned. But in this character it is like *P. armatus* and other species. Only three males have been found.

18. **Lucidota difformis.**

Oblongo-subovata, nigra; prothorace, ore, palpis, meso- et metasternis, pedibus basi, elytrisque dimidio basali indeterminate flavis; antennarum articulis duobus apicalibus albidis; segmentis duobus ventralibus pallide flavis. Long. 9 millim. ♂.

Femina. Antennis articulis duobus ultimis cum precedenti (basi prætermissa) albidis, elytris totis ochraceis. Long. 10–11 millim.

Hab. Panama, Volcan de Chiriqui, Bugaba (*Champion*).

If I am correct in uniting these two forms as the male and female of one species, it is the first case that has come under my notice among the Lampyridæ of the sexes being differently coloured; the difference, however, is only that of the elimination of the in-

fuscate deepening of colour of the apical half of the elytra, which varies in many species, and may be sometimes confined to one sex. At all events all the specimens I have examined with dark elytra are male, while the three with wholly ochraceous elytra are female. This species is rather wide, with the thorax of the usual size, with its disc smooth, without channel, faintly carinate, and sometimes with small tubercular points; the margin is flattish, not much reflexed, the colour of the disc rich brick-red, in the female not differing so much from the margin in brightness. The coxæ, trochanters, and femora are yellow, the tibiæ and tarsi are blackish fuscous, as well as the knees in the male. In colour this *Lucidota* resembles *L. discolor*, *L. rufa*, Ol., and several other species known to me with the elytra yellow, with black apices. The antennæ with white apical joints will distinguish it from any of them. It will come near to *L. apicalis*.

19. **Lucidota vitricollis.**

Oblongo-subovata nigra; prothorace sordide albida, antice vitrea macula discoidali subquadrata miniata, ad basin parum infuscata; antennis breviusculis, simpliciter compressis; segmento sexto ventrali macula parva alba. Long. 10 millim. ♂?

Hab. Guatemala, Purula (*Champion*).

The species for which this specific name is proposed differs very much in some aspects from others of the genus, and is, in fact, very nearly allied to an insect from Japan, which I have recently described under the name *Lucidota fumosa*. These species have the antennæ almost simple; the thorax narrows from the base, but is either evenly round in front, or the front is sinuously produced, and has the front portion with diaphanous glassy areolets. The examples of *L. vitricollis*, five in number, appear to be males, and the structure of the apex of the abdomen is a little similar to that of the species of *Hyas* with simple antennæ, viz. the seventh ventral plate and the pygidium leave an opening between them, the eighth or genital segment being concealed within. The only luminous part is a single spot in the centre of the sixth segment, which is conspicuously white, with sometimes a very small indistinct spot on the preceding segment, but no doubt the light affects other parts of these plates, which are often brownish in dried specimens.

20. **Lucidota chiriquiana.**

Oblongo-subovata, nigro-fusca, supra ochracea; prothorace subtriangulari, lateribus reflexis, disco macula quadrata parum miniata, antice leviter carinata; capite, antennis, tibiis, tarsis abdomineque fuscis. Long. 9–10 millim. ♂.

Mas. Segmentis ventralibus quinto et septimo utrinque albido-maculato.
Femina? Segmentibus ventralibus tribus apicalibus cum pygidio totis albis.

Hab. Panama, Volcan de Chiriqui, Bugaba (*Champion*).

This species has a very puzzling aspect. At first sight it is very like the yellow form of *Hyas semifusca* met with on the Volcan de Chiriqui, but is narrower; nor have I observed the light-giving spots to be placed in a similar position in any of our species

of that genus. The occurrence of specimens with the whole of the three apical plates pale does not assist us here, for I cannot recognize in either of these forms any sexual difference in the head, antennæ, or form of the ventral plates; these are of the male type, such as exist in *L. vitricollis*. This species and the following one have a general resemblance to the genus *Alecton*. The reference to *Lucidota* must therefore only be considered a provisional one, till the generic characters have been better elucidated.

21. **Lucidota complanata.**

Oblonga, parum ovata, nigro-fusca; prothorace subtriangulari, antice rotundato, sordide ochraceo, disco nigro-vittato, utrinque haud conspicue miniato, obsolete carinato; elytris margine explanato ab humeris, pone medium late pallidis. Long. 9–10 millim. ♂.

Mas. Segmentis tribus apicalibus ventralibus utrinque albido-maculatis.

Hab. Panama, Volcan de Chiriqui, Bugaba (*Champion*).

The characters of this species are the same as those of the last, excepting the colour of the thorax and elytra, and of the whole underside of the body, these being of a dark fuscous-black, with only the parts named in the diagnosis pale. The antennæ are compressed, scarcely serrate, widest in the middle, reaching rather behind the posterior coxæ. The apical ventral spots are in some cases visible on the three last segments, in others only on the fifth and seventh; and in some specimens the three segments are wholly pale, as in *L. chiriquiana*. Met with commonly by Mr. Champion in the hot low country at Bugaba, less frequently at from 2000 to 6000 feet altitude; it is, he observes, frequently found sitting on leaves in the forest in early morning, and not seldom seen on the wing.

22. **Lucidota fenestrata.**

Oblonga, parum ovata, fusca; prothorace elytrorumque margine laterali et apicali sordide albis, prothoracis disco miniato vix ad basin infuscato, lateribus antice angustatis fronte subdiaphano; antennis serratis. Long. 9 millim. ♂.

Mas. Segmentis quinto et sexto macula transversa in medio alba nitidissima, nigrocincta; oculis sat magnis.

Hab. Panama, Volcan de Chiriqui (*Champion*).

This species will perhaps be best recognized by my comparing it to very small *Cratomorphus*, with which genus, indeed, I should be inclined to incorporate it, if it were not that the antennæ are longer and more serrate than to render that course necessary, and because the apical segments are in form the same as those of the three species just described. The luminous parts are, however, different, being two transverse areæ on the fifth and sixth ventral plates, just such as are seen in some true *Cratomorphi*, e. g. *C. ovatus*. The thorax is pale, slightly diaphanous in front, narrowed from its base, but neatly rounded in front. The elytra are fuscous, or pale leaden black, with the entire lateral margin pale, this pale margin returning a little up the suture at its apex. I have only detected two examples among the Lampyridæ

collected by Mr. Champion; they were probably not distinguished at the time from *L. complanata*. The seventh ventral and the pygidial plates afford an opening, within which the genitalia lie concealed; but in this and its allies I think I recognize two curved style-shaped or filiform processes, which may act as claspers. These parts are all very soft, and sufficient specimens are not available at present for ascertaining by dissection whether they will prove of any use in the formation of a genus.

23. **Lucidota comitata.**

Nigro-fumosa, subparallela; prothorace albido, disco nigro-vittato, utrinque miniato; elytrorum limbo laterali pallido; antennis nigris leviter serratis. Long. 6½–7 millim. ♂.

Mas. Segmento ventrali septimo utrinque macula parva haud distincta albescente.

Hab. PANAMA, Volcan de Chiriqui, Bugaba (*Champion*).

This is one of the smallest Lucidotæ, and as it precisely resembles in colour and size *Photinus plumbeus* and *P. concinnus*, it would be readily confused with them, unless the more compressed, broader, and more serrate antennæ were noticed. On examining the underside a greater difference would be seen, as, instead of the abdomen being wholly white in its apical half, only two very inconspicuous spots are to be seen on the penultimate ventral plate.

It appears to be not uncommon in the localities where it was found.

Lucidota diaphanura (p. 36).

To the Mexican localities given, add:—Misantla (*Höge*, ♂), Chiquishuita (*coll. Sallé*).

The two males noticed in my description as differing slightly from the type are from the locality last named. Three males in Höge's collection are most intensely black in the dark parts, and have the margins of the thorax narrowly black.

Lucidota discolor (p. 37). (Tab. XI. fig. 23, var.)

Hab. PANAMA, Volcan de Chiriqui, Bugaba (*Champion*).

PHOTINUS (p. 38).

1 (A). **Photinus incongruus.**

Oblongus; elytris sat latis, fuscis, margine toto vittaque ante apicem abbreviata testaceis; prothorace pallide testaceo disco nigro-fusco utrinque miniato; scutello fusco, apice dilutiore; corpore subtus nigro (segmentis diaphanis exceptis); femoribus basi coxisque pallidis. Long. 16–18 millim. ♂ ♀.

Mas. Segmentis quinto et sexto ventralibus totis læte flavis, eburneis, septimo perbrevi pallido, genitali parvo, ægre observando pallido, pygidio nigro.

Femina. Segmento quinto in medio transversim diaphano; sexto, macula mediana pallida, margine apicali in medio minute exciso; apicali fusco apice exciso.

Hab. GUATEMALA, Chinantla (*coll. Sallé* ♂ ♀); PANAMA, Volcan de Chiriqui (*Champion*).

Very closely allied to *P. congruus*, Chevrolat, some of the varieties of which completely resemble it on the upper surface; but having now examined a large series of both, I have no doubt of their specific distinctness. The antennæ are shorter in the male; when the head is extended in *P. incongruus* they do not reach further back than the posterior edge of the metasternum, while in *P. congruus* they will be longer by the two or three apical joints. M. Chevrolat did not distinguish the sexes of *P. congruus*, but simply says the three apical segments of the abdomen are traversed with yellow. The fact is that the basal segments in the male of that species are pale fuscous margined with whitish yellow, the basal half of the fourth and all the apical ones are pale, and the pygidium is subdiaphanous; this latter character I find to be always fixed. The female also (and I have a type from himself) is wholly pale at the apex of the abdomen, not partly infuscate as in *P. incongruus*.

The pale vittæ of the elytra are generally costate, with the nervure conspicuous in *P. congruus*, and the lateral margin is dark. In *P. incongruus* there is only one discoidal vitta quite even, and of equal width, and the margin is pale. The whole insect, and especially the thorax, is narrower.

Mr. Champion found this species in dense virgin forest on the Volcan de Chiriqui, at the altitude of 5000 to 6000 feet, and not lower.

Photinus incongruus, var.?

Pallidior, vitta discoidali vel ægre distinguenda, vere omnino obliterata. Long. 12–18 millim. ♂ ♀.

Hab. Panama, Volcan de Chiriqui, alt. 2000 to 3000 feet, Bugaba (*Champion*).

At lower altitudes on the Volcan de Chiriqui Mr. Champion met with a few specimens of a *Photinus*, which only differ from *P. incongruus* in the pale fuscous colour of their elytra. The specimens from Bugaba are altogether without a vitta, and one of them is smaller than any other specimen I have seen, while those from an intermediate altitude have the vitta faint. Thus we may expect to find traces of other species at different altitudes; and the darker or melanic forms occur both in higher latitudes, as well as in the cooler regions of mountain districts.

I have observed the same effect to be produced in *Photuris pennsylvanica*, a species which is somewhat similarly marked to this species.

2 (a). **Photinus ignis-fatuus.**

Nigro-fuscus; thorace albido subdiaphano, disco nigro, utrinque miniato. Long. 19–21 millim. ♂ ♀.

Mas. Segmentis quinto et sexto ventralibus læte flavis, marginibus profunde excavatis, apicalibus cum pygidio pallidis.

Femina. Segmentis tribus apicalibus albidis.

Hab. Panama, Volcan de Chiriqui (*Champion*).

Allied to *P. meteoralis*, but differs in the ventral luminous parts, especially those of the male.

The thorax is also entirely pale at its edges, and the black portion of the disc is much less extended. The elytra, especially those of the female, are less deeply black, and show no trace of a vitta.

Of eight specimens collected by Mr. Champion, three are males.

Photinus meteoralis (p. 38).

Var. Thoracis disco vitta lata nigra utrinque miniata.

Hab. GUATEMALA, Cerro Zunil (*Champion*), Coban (*Sallé, coll.*).

Photinus perelegans (p. 40).

To the localities given, add:—PANAMA, Volcan de Chiriqui (*Champion*). ♂.

The specimens from the Volcan de Chiriqui are darker, with the margins and suture conspicuously pale by contrast, the pygidium being also dark. Mr. Champion remarks that this species is highly luminous, as no doubt the males of all species of the "*Macrolampis*" section are. About ten specimens, all males, were found by him at the elevation of 5000 to 6000 feet.

6 (A). **Photinus volcanicus.**

Oblongo-elongatus, parallelus, depressus, nigro-fuscus; prothoracis margine laterali et frontali albido, disco plus minusve nigro nitido, utrinque plerumque parum miniato; elytris fuscis, sutura margineque albis, ante apicem et basin desinentibus. Long. $7\frac{1}{2}$–10 millim. ♂ ♀.

Mas. Segmentis quinto et sexto longioribus, læte albidis eburneis; quarto etiam ad apicem albido.

Femina. Segmento quinto albido, apicalibus fuscis.

Hab. NICARAGUA, Chontales (*Janson*); PANAMA, Volcan de Chiriqui, Bugaba, Tolé (*Champion*).

This is the insect referred to at p. 47, *anteà*, under *P. pulchellus*, as differing from the type. Further study of a very large series brought by Mr. Champion from Panama, enable me to describe it as quite distinct. It is, in fact, one of the *Macrolampis* section, and I have no doubt it is a widely spread and abundant species. It is larger and longer than *P. pulchellus*, and (apart from the luminous segments of the male) the greater amount of black on the disc of the thorax, the legs not pale at their bases, &c., will separate it. The only other species to which, for size and colour, it can well be compared, is *P. cinctellus*, but its form is wholly different, not being in any way oval or convex. The Chiriqui specimens are (as in other species already noticed) darker when found at elevations of 5000 to 6000 feet, than those from 2000 to 4000 or lower altitudes.

6 (B). **Photinus infirmus.**

Pallide testaceus vix albescens; capite nigro; thorace disco perobsolete canaliculato, miniato, interdum subinfuscato; abdomine basi fusco. Long. 7–11 millim. ♂ ♀.

Mas. Segmentis quinto, sexto et apicalibus albido-flavescentibus.
Femina. Pectore magis infuscato, segmentis quinto et apicali pallidis, sexto infuscato.

Hab. GUATEMALA, Zapote, Cerro Zunil, San Isidro, Las Mercedes (*Champion*); PANAMA, Volcan de Chiriqui, Bugaba (*Champion*).

Among the *Photini*, species which are very pale on their upper surface are at first very puzzling and unsatisfactory to deal with, looking as they do like pale or immature forms of other species. A very careful study convinces me that in general such forms are quite distinct, and that these soft insects dry and mature so quickly that it is very rarely they are met with at large immature. The present is the first example of a really pale species among the Lampyridæ in this work, but such species are frequent in the hotter parts of the West-India Islands and South America, and it will be recollected we have had similarly pale species among the Telephoridæ.

This insect is, I think, nearest *P. volcanicus*, but has the elytra never more than slightly infuscate, with narrowly pale margins. The thorax is not longer than it is broad at its base. It is not often brightly rosy, but it is very beautifully so in the specimens from Bugaba, which I select as the types, and with these a single specimen from Zapote agrees. The dark fuscous colour of the abdomen contrasting with the white luminous segments proves the specimens mature, as does the condition of the genital segments, and the black head. The antennæ are scarcely half as long as the body; they are, with the margins only of the tibiæ and tarsi, fuscous. The wings are also (as usual) dark fuscous. About two dozen specimens were sent; the sexes being nearly equal in number. In all *Photini*, unless the contrary is mentioned, the eyes of the males are larger than those of the females, a character which will often assist one in separating them from *Lucidotæ*, in which genus they are nearly equal.

10 (A). **Photinus radians.**

Oblongo-elongatus, parallelus, nigro-fuscus; prothorace pallido, disco late nigro-vittato (vitta proper basin transversim dilatata) utrinque miniato, medio obsolete canaliculato, antice tenuissime carinato; elytris brunneis, disco late infuscatis, vel nigro-fuscis, sutura margineque laterali et apicali brunneis. Long. 14–15 millim. ♂ ♀.

Mas. Segmentis quarto ad apicem, quinto et sexto totis albis eburneis, pygidio fusco.
Femina. Segmento quarto ad apicem, quinto in medio albis, sexto et apicali fuscis.

Hab. PANAMA, Volcan de Chiriqui, Bugaba (*Champion*).

Of the size and form of the species recorded in the present work as *P. consanguineus*, and, like it and *P. cinctellus*, margined round the entire edge of the elytra, except at the base, but of a rich chocolate brown colour, and with this colour often widened at the basal half of the suture, and expanding till it meets the marginal brown, thus leaving only the bases and a portion near the apex indistinctly infuscate. The antennæ are shortish, not reaching behind the posterior coxæ. I do not mention the form of the ventral segments because these are normal, and have been already described by me;

I shall, therefore, in future only allude to such cases as appear to me peculiar and specific. Such segments as are described by the word "*eburneus*" are of a yellowish white, and with a shining waxy-looking surface, while such as are simply termed white may be assumed to be dull and soft.

Of this new species a very great number of specimens were collected by Mr. Champion; it was apparently very abundant in the forests at from 2000 to 6000 feet. The males were as usual more abundant than the females.

12 (A). **Photinus flohri.**

Nigro-fuscus; elytris nigro-plumbeis, prothorace læte albo-flavescente, disco nigro-vittato utrinque miniato, basi lato, lateribus antice valde angustatis; elytris subdepressis in medio paullulum ampliatis. Long. 8–11 millim. ♂ ♀.

Mas. Segmento sexto ad marginem, duobus apicalibus cum pygidio totis albis, pygidio segmenta ventralia multo superante.

Femina. Segmentis apicalibus ventrali et dorsali totis cum duobus precedentibus ad margines albis.

Hab. MEXICO (*Flohr*).

Señor Flohr sent me four specimens of a *Photinus*, which I at first thought identical with *P. simplex*, but which on examination proves distinct; it will be recognized by the very beautifully marked thorax, of which the sides narrow strongly from the base. The elytra are nearly of the same colour and form as those of *P. aurora*, *P. sanguinicollis*, and *P. albicauda*, i. e. totally leaden black and slightly expanded.

The thoracic vitta is faint on the front margin, but not (as in *P. aurora*) wholly obliterated.

13 (A). **Photinus? brevicornis.** (Tab. XII. fig. 9.)

Nigro-fumosus; prothorace, scutello, mesosterno, coxis trochanteribus et femoribus aurantiaceo-rufis; antennis brevibus, compressis, pubescentibus, versus apicem valde attenuatis, articulis duobus basalibus apiceque summo testaceis. Long. 10–11 millim. ♀.

Femina. Segmento quinto ventrali macula mediana alba, apicali (septimo) pallida, utrinque alba.

Hab. GUATEMALA, San Isidro (*Champion*).

This species is of the size, and above almost exactly of the form and colour of *Lucidota bella*, but the shortness of the antennæ and their total want of serration (the joints being not at all produced on their inner sides), although we have at present seen only two female examples, certainly indicate a distinct species. It may possibly be a *Lucidota*, but in the absence of the male that question cannot be settled. The length of the antennæ, their want of compactness, and the serration or pectination of their joints are among the characters which best distinguish that genus, and these are all wanting in the very short compressed joints closely articulated, which we find here. It is, however, wholly distinct from *Photinus ruficollis*, and the light-giving white spots are so different from the wholly yellow terminal segments of that species that I should not place it very near it; moreover the thorax is much more like that of

a *Lucidota*, viz. distinctly impressed in the centre, the margins reflexed, and rather strongly punctured, except on the disc, of which the convex portion is smooth and of a deeper orange colour. The scutellum is distinct and brightly yellow, the elytra have two or three raised lines as in *L. bella* but not quite so well defined, and the margin of the elytra is not reflexed at the apex in this insect as it is there. In addition to the species from North and South America, which closely resemble each other, I may call attention to the fact that I have described in the notes from the Leyden Museum, Vol. iv. p. 102, a species of *Vesta* almost precisely similar to these insects, but which inhabits Sumatra. The generic differences separating these insects are hardly so great as those which separate this species from *Photinus ruficollis*.

15 (A). **Photinus montanus.** (Tab. XII. fig. 10.)

Ater, ovatus; prothorace transversim subquadrato antice prominulo, disco utrinque macula rufa notato. Long. 8 millim. ♂.

Mas. Segmentis quinto et sexto albis, eburneis, septimo et pygidiali pallidis, genitali nigro.

Hab. GUATEMALA, Volcan de Agua (*Champion*).

A very distinct species from any yet recorded in this work, but allied to the species which follow. It is easily to be recognized in this genus by the thorax being black with a squarish orange-red spot on each side. The very white luminous ventral parts will separate it from the following, with which when it is compared, the small and transverse thorax will be noticeable. The specimens were found at the high elevation of 8500 to 10,000 feet.

15 (B). **Photinus nigro-limbatus.**

Niger; prothorace albescente, subdiaphano, disco nigro utrinque miniato, margine laterali tenuissime nigro; elytris sordide pallidis limbo toto tenuissime nigro; pedibus pallidis, tibiis tarsisque subinfuscatis. Long. $8\frac{1}{2}$–10 millim. ♂ ♀.

Mas. Segmentis quinto et sexto flavis subeburneis, apicalibus pallidis, genitali nigro.

Femina. Segmentis quinto, sexto et apicali totis albido-flavis.

Hab. GUATEMALA, Volcan de Agua (*Champion*).

In form and colouring of thorax rather like *P. lunicollis*, to which this species is clearly allied, but from which it differs in the very pale colour of the elytra, and in their being very finely margined with black. This narrow margin extends all round the thorax and the elytra, being faint or quite evanescent in the front of the thorax, and at the base of the suture. The colour of the elytra is very nearly that of *P. infirmus*, but the form is that of *P. lunicollis*. Examples occur without the narrow black margin to the elytra.

Photinus guatemalæ (p. 44).

To the Guatemalan localities given, add:—Quiche Mountains, Totonicapam 8500 to 10,000 feet (*Champion*).

The specimens from Totonicapam vary a little from the type in having the thorax black with an oblong orange-red spot on each side, and the luminous segment, which is almost confined to the sixth in both sexes, roseate. A good series was obtained at Dueñas, all of which agree pretty closely.

Photinus lunicollis (p. 44).

Several more Guatemalan specimens from Dueñas and Capetillo have been examined by me; many individuals show no trace of luminosity in either sex, while some males have the sixth segment whitish.

Photinus aurora (p. 45).

To the localities given, add:—PANAMA, Bugaba (*Champion*).

Photinus albicauda (p. 46).

To the Mexican localities given, add:—Jalapa, Cordova (*Höge*).

Two specimens; one from Jalapa brightly coloured and easily recognized, a male; one from Cordova discoloured and doubtful.

19 (A). **Photinus moestus.**

Ater, ovatus; prothorace disco rufo, nigro-vittato, lateribus nigris, margine antico dilutiori quam ♀.
Mas? Segmento septimo cum pygidio utrinque albescente.
Femina. Abdomine toto nigro. Long. 8–9½ millim.

Hab. GUATEMALA, Purula, Cubilguitz, San Gerónimo (*Champion*).

Not unlike *P. sanguinicollis* and mentioned under that species as possibly identical with it. It is, however, more oval, and has its thorax more widely margined with black. The black vitta is of nearly the same width in the middle as the margin, but widens at the base and in front. Thus the disc is divided in two blood-red areæ. The thorax is very nearly semicircular. The wholly black abdomen is noticeable and will separate it from its allies at present described. One male specimen from Purula has the abdomen with only a faintly whitish area on each side of the black genital eighth segment, that is to say on the seventh ventral and on the pygidial. But I think this male may be a specimen of *P. guatemalæ*, as another male has the abdomen black.

19 (B). **Photinus eöus.**

Oblongo-elongatus, nigro-fuscus; prothorace miniato, margine albescente, disco canaliculato medio parum infuscato; antennis articulis tribus vel quatuor ultimis albis; abdominis segmentis quatuor apicalibus utriusque sexus indeterminate albis. Long. 7–8 millim. ♂ ♀.

Hab. PANAMA, Volcan de Chiriqui, Bugaba (*Champion*).

This species will, I think, be recognized when the combined characters of rather long antennæ with the apical three or four, with sometimes half of the preceding joint, nearly wholly rufous, thorax with a distinct but short channel, and abdomen with three or four segments white (but not ivory-white or shining) are noticed. The elytra are blackish and dull and are sometimes narrowly margined with pale; this is especially noticeable in the Bugaba specimens. The legs are black, the front ones and the middle pair being a little paler at their bases. Mr. Champion observed this species and several others to fly in the early morning in the forest. A very common species in the locality where it was found; a large series of more than one hundred examples was collected.

19 (c). **Photinus subfuscus.**

Oblongo-elongatus, subparallelus, sat latus, fuscus; prothorace pedibusque pallidis, his, tibiis tarsisque, illo disco disperse fuscis; capite nigro. Long. 15 millim. ♂ ♀.

Mas. Segmentis quarto, quinto et sexto pallide flavis eburneis, septimo et genitali fere obtectis pallidis; segmento sexto margine in medio angulariter exciso, septimo perbrevi in medio acute producto.

Femina. Segmentis quatuor ventralibus apicalibus albis.

Hab. Panama, Peña Blanca, San Feliz, Tolé (*Champion*).

This *Photinus* is allied to many South-American species, but has no near ally among the species yet recorded from Central America. It may be recognized perhaps by being compared to the European *Lampyris reichei* or the North-African *L. zenkeri*, which it closely resembles in size, form, and colour. The prothorax is equally wide and long, but evenly rounded in front and sometimes narrowed from the base, which makes it of the form often called hat-shaped; its surface is even, rather widely rugose round the margins, but little reflexed; the centre of the disc has a rude rather deep channel, on each side of which is a tumid swelling darker in colour than the rest of the disc. The elytra are of a pale fuscous tint evenly distributed. The female specimen described has the margin of one elytron abnormally expanded below the middle and asymmetrically to the other one, in which it is very slightly so. The specimen from Peña Blanca is a female; this one has the elytra normally formed, the abdomen very wide, the sides of the two dorsal penultimate segments, and most of the pygidial one, pale.

22 (a). **Photinus armatus.** (Tab. XII. figg. 2, *a*, *b*, *c*, ♂.)

Oblongus, subparallelus, nigro-fuscus; prothorace albido, disco late nigro-vittato, utrinque læte miniato; antennis articulis duobus apicalibus albis; pedibus basi et geniculis pallidis. Long. 7 millim. ♂ ♀.

Mas. Segmento septimo apice acute producto, octavo (genitali) convexo; genitalibus lanceolis quatuor armatis, duobus superioribus uncinatis, inferioribus curvatis acutis.

Femina. Segmento ventrali apicali apice rotundo simplici, utrinque maculis duobus albescentibus.

Hab. Panama, Bugaba (♂ ♀), Volcan de Chiriqui (*Champion*).

This species is remarkable for the genital armature of the male. I have not observed

anything similar to it among the Lampyridæ before. The antennæ are compressed and not unlike those of a *Lucidota*, such as *L. tincta*, with which I at first associated the species, and which it resembles in colour, but they are very much shorter, and it appears to me that this very curious species is allied to *P. exstinctus*, and that possibly they are forms requiring a new genus; but a close examination of that species (of which I had formerly seen only female examples), although I have detected males, does not reveal any such remarkable appendages as we have here. The males would not appear to be highly luminous, the seventh segment only being a little paler than the rest of the abdomen, while the female has two pale spots, one on each side of the apical segment, which are clearly the light-giving parts.

Fortunately a male and a female were transmitted, united *in copulâ*, on one card from Bugaba, from which I have drawn the diagnosis. In some of the specimens from the higher altitudes of the Volcan de Chiriqui the margins of the elytra are white as in *L. comitata*, but in the types they are of the same black tint with the elytra. So many species are coloured in the same way that comparative characters based on colour alone would be only misguiding. The width of the antennæ would lead one to place the insect in *Lucidota*; I prefer to retain it here, as being allied to *P. exstinctus*, *P. sobrinus*, and *P. nigricans*, Say. From *Lucidota tincta*, with which it might be otherwise confounded, in addition to the genital armature, the proportional shortness of the antennæ will separate it. Their joints from 3–8 are about half as long again as wide, hardly more produced at their angles internally than externally, so that they are not serrate, nor do they differ in the sexes; joint 10 is as long as but narrower than the preceding one, white, or infuscate at its base only; joint 11 is much smaller in the female, but as long though narrower in the male and entirely white. At present I have found about six specimens from each locality which I refer to this species.

25 (A). **Photinus diurnus.**

Oblongo-elongatus, subparallelus, nigro-fuscus, parum nitidus; prothorace disco nitido, basi impresso, margine frontali et laterali pallido, elytrorum limbo toto basi excepta, pedibusque basi pallidis. Long. 6–7 millim. ♂ ♀.

Hab. PANAMA, Volcan de Chiriqui (*Champion*).

This insect is closely allied to *P. fumigatus*, and might perhaps be considered a local form of that species; nevertheless the whole series of several hundred specimens collected by Mr. Champion at the altitude of 2500 to 4000 feet differ from that species, which is common at lower altitudes, in being more parallel and much narrower. It is, like *P. fumigatus*, either non-luminous or very slightly so, judging by the abdominal segments, which are only infuscate towards the sides and apex in either sex. The thorax is more uniformly dark all over the disc than in *P. fumigatus*, in which species the sides of the disc have often a deep red spot. There is very little doubt that it is a day-flying species.

25 (B). **Photinus championi.**

Oblongus, sat latus, nigro-fuscus, vix nitidus; elytrorum limbo toto (basi excepta) tenuissime flavo; prothorace lineola brevi utrinque sanguinea (maris), vel concolore (feminæ). Long. 18 (♂), 16½ (♀) millim.

Mas. Segmentis quinto et sexto flavis eburatis.

Femina. Segmento quinto flavo, sexto margine apicali bisinuato, medio exciso.

Var. Prothorace pallido, disco nigro-fusco utrinque lineola sanguineo, margine reflexo sordide infuscato. ♀.

Hab. GUATEMALA, Volcan de Agua 8500 to 10,000 feet, Quezaltenango 7800 feet (*Champion*).

This fine species of *Photinus* is one easily recognized by its large size and general dark colour, the thorax being relieved by a vivid blood-red line on each side of the dark disc. There are only two specimens from each of the localities. Those from the Volcan de Agua are darker than those from Quezaltenango, and the female specimen of the former is concolorous above, if we except the extremely fine but distinct yellow margin and suture. The apical segments are normal—the genital one in the male being quite black, the one preceding it, or the seventh, being black, only pale at its sides, the fifth and sixth totally yellow and shining. In the female it is the fifth alone that is luminous, the apical and subapical ones dark and notched in the middle. I have pleasure in dedicating this species to its captor, Mr. Champion.

25 (C). **Photinus signaticornis.**

Breviter ovatus, nigro-piceus, parum nitidus; prothorace ad latera albescente, disco late miniato, nigro-vittato; antennis brevibus compressis, articulis duobus vel tribus apicalibus albis. Long. 7½ millim. ♀.

Mas. Latet.

Femina. Segmento ventrali apicali flavo-albescente.

Hab. PANAMA, Bugaba (*Champion*).

The white apical joints of the antennæ separate this species of *Photinus* from any except *P. armatus* and *P. eöus*, from either of which it is distinguished at once by its short oval form, in addition to other characters. The elytra are entirely black, with a faint purplish tinge. The antennæ have all their joints short, the intermediate ones about half as long again as wide, while the three white apical ones in the female are not longer than wide. One example has rather longer antennæ, with two joints only white, and is perhaps the male; the abdomen, however, in this one is too much shrunk to be well observed. The form is very nearly that of *P. latiusculus* and of *P. montanus*.

25 (D). **Photinus purulanus.** (Tab. XII. fig. 1.)

Oblongus, subparallelus, niger, depressiusculus; prothorace maculis duabus rubricatis. Long. 5–6 millim. ♂ ♀.

Mas. Oculis globosis prominulis, segmento subapicali ventrali macula parva utrinque pallida.

Hab. GUATEMALA, Purula 4000 to 5000 feet (*Champion*).

This little species is not very like any other known to me as described. The thorax

is very small compared with the length of the elytra, and has the entire margin as well as a narrow vitta black, leaving only two, not regular, spots red. The black parts of the thorax are rather rugose; the antennæ are filiform, more than half as long as the body, wholly black. The luminous parts appear to be very small, confined to two spots on each side of the apical segment. Six specimens agree in these characters.

30 (A). **Photinus pusillus.**

Griseo-niger; prothorace albescente, disco miniato nigro-vittato, basique in medio nigricante; elytris margine laterali concolore; antennis breviusculis, articulis intermediis oblongo-quadratis haud serratis. Long. 5 millim.

Hab. PANAMA, Bugaba, Volcan de Chiriqui 4000 to 6000 feet (*Champion*).

Var. Elytris margine albido.

Hab. PANAMA, Bugaba (*Champion*).

Approaching very closely to *P. parvulus* this little species must be separated on account of the comparative shortness of the antennæ, and the abdomen instead of having two or three white segments has only a small pale spot on each side of the apex, which is very little distinct, but is a little raised and shining. The antennæ have the joints relatively much shorter than in *P. parvulus*, and the thorax has not the disc broadly dark, but only with a vitta which narrows from the front towards the base, and has there a more or less distinct transverse extension. The legs, mouth, and parts of the sterna are often pitchy. The eyes are small in all the specimens I have yet examined. Some specimens from the lower elevation of 2000 to 4000 feet are smaller, but present no differences upon which I can pronounce them distinct; there are two specimens from a higher altitude, 4000 to 6000 feet, still smaller, measuring scarcely more than 3 millim., and which have their very small thoraces with a reddish spot on each side of the disc, the black vitta being widened in front as well as at the base. These may be a distinct species. The two specimens I allude to are, I think, the smallest Lampyridæ I have yet seen.

30 (B). **Photinus minusculus.**

Niger; prothorace albescente, nigro-vittato; antennis leviter serratis, articulis duobus apicalibus albis. Long. 5 millim.

Hab. PANAMA, Volcan de Chiriqui 2000 to 4000 feet (*Champion*).

This is obviously a distinct species from *P. parvulus* or *P. pusillus*: there being, however, only two examples (of which, from their condition, I cannot determine the sex), it is not advisable to do more than indicate the existence of the species. From *P. armatus* the much smaller size and concolorous margin of the elytra separate it. The legs are whitish, clouded with dark.

Photinus ater (p. 49).

To the Mexican localities given, add :—Ciudad in Durango (*Forrer*).

Three males taken by Forrer differ from the type in being longer; but are not, I think, distinct.

PYRECTOMENA (p. 50).

Pyrectomena striatella (p. 51).

To the localities given, add :—Mexico, Cordova (*Höge*, ♂ ♀).

A male and a female taken by Höge at Cordova differ in no way from this species, except in their rather larger size. The thorax in these two specimens is beautifully miniated on the disc above the transverse production of the central vitta, and there is a quite diaphanous spot on each side in front of this red part, the eye showing through, which appears like a dark mark. This is also the case in specimens from Dueñas, where it is abundant.

4. **Pyrectomena discoidea.**

Oblonga, nigro-fumosa; prothoracis margine laterali et frontali, elytrorum margine laterali sat late et sutura tenuiter albescentibus, limbo laterali attamen tenuissime nigro; prothorace carinato, disco convexo, latius nigro utrinque parum miniato. Long. 7–10 millim. ♀.

Hab. Panama, Taboga Island, San Miguel in the Pearl Islands (*Champion*).

Of this new species only three specimens have been found, and as all are females the description is incomplete. The body beneath, with the legs, is nearly quite dull black, the trochanters, tips of the coxæ, and extreme margins of the ventral segments alone being pale. The antennæ are short, even for a *Pyrectomena*, and have as usual two or three joints at base paler. The thorax is less produced and rounder in front than usual in this genus, and the disc is more suffused with black, so that the species at first sight appears very like a *Photinus*. The characters which usually distinguish a *Pyrectomena* are :—the elongation of the thorax, with sides nearly parallel in their basal half; the possession of a carina in the centre of its disc; distinct costæ on the elytra; and in the male the fifth and sixth ventral plates are long and very distinctly eburated, yellow, and smooth.

The female of this species does not appear to be at all luminous. The specimens differ very much in size; and in one of the two smaller ones from Taboga Island the suture is unicolorous with the elytra.

CRATOMORPHUS (p. 51).

4. **Cratomorphus altivolans.** (Tab. XII. fig. 3.)

Late ovatus; prothoracis elytrorumque marginibus expansis; corpore nigro; ore, pectore, pedibusque basi testaceis; supra ochraceus; thoracis disco basi macula quadrata per lineam flavam divisa. Long. 23, lat. elytr. 13 millim. ♂.

Mas. Abdominis segmentis quinto et sexto ventralibus in medio et ad latera, apicalibusque totis flavis; pygidio apice leviter at late exciso.

Hab. Panama, Volcan de Chiriqui (*Champion*).

A single example of a fine *Cratomorphus* does not agree with any species I have seen. It may be compared to *C. fuscipennis*, from which the black body and legs and the thoracic square mark distinguish it.

Cratomorphi seem always rare. I have never been able to obtain any species in numbers.

Cratomorphus dorsalis (p. 52).

To the localities given, add :—Panama, Volcan de Chiriqui 2000 to 3000 feet, Bugaba (*Champion*).

A male and a female occurred at the former, one female at the latter locality. The largest female is 25 millimetres in length. In this one the ventral segments are yellow in their centres, the basal ones more widely so, the fifth and sixth yellow and subdiaphanous, showing spots of the luminous matter, the seventh (or apical) triangular, deeply "nicked" at the apex.

5. **Cratomorphus concolor?** (Tab. XII. fig. 5.)

Cratomorphus concolor, Perty, Del. An. Art. p. 27[1]; Gorh. Trans. Ent. Soc. 1880, p. 36[2].

Oblongo-subovatus, pallide testaceus; prothorace antice diaphano, margine parum elevato, macula basali subquadrata picea, per lineas duas miniatas intersecta; elytrorum basi, pectore pedibusque leviter infuscatis, capite et antennis nigris, his articulo basali testaceo. Long. 14–15 millim. ♂.

Mas. Oculis magnis, segmento apicali ventrali et pygidio trilobatis, lobo mediano majori, apice rotundato, lateralibus subacutis.

Hab. Panama, Volcan de Chiriqui 2000 to 4000 feet (*Champion*).—South America, Rio Janeiro[2], Callao.

The determination of species of *Cratomorphus* is difficult, because sufficient attention has not been given to the ventral apical segments of the sexes, which, in this genus especially, are of primary importance. The present species agrees so closely with the specimens from South America referred to in my note in the 'Transactions' quoted that I have no doubt of their identity. The question of whether these are really the *C. concolor* of Perty is still unsettled.

This insect is not unlike a very small *C. dorsalis*. One of the specimens is much more suffused with fuscous than the other, perhaps only from discoloration after death.

6. **Cratomorphus ovatus.** (Tab. XI. fig. 18.)

Late ovatus, nigro-plumbeus, parum nitidus; prothorace, pedibus basi elytrorumque margine infra medium flavescentibus; thoracis disco prope basin rufo, linea mediana et ad marginem basalem vix infuscata, sutura tenuiter flava. Long. 15, lat. elytr. 8 millim. ♂.

Mas. Segmento ventrali apicali medio paullo acuminato; pygidio truncato, margine apicali bisinuato, segmentis quinto et sexto macula transversa lucide flava.

Hab. Panama, Volcan de Chiriqui 6000 feet (*Champion*).

A single male, not very satisfactorily placed in this genus. The only structural point, however, in which it differs seems to be that the abdomen is wholly dark leaden black, with the exception of the two luminous spots. The genital or eighth segment is concealed, as usual in *Cratomorphus*. The general appearance is that of *Hyas*, but the anal aperture is closed. The antennæ are shown too long in the figure.

7. **Cratomorphus fasciatus.** (Tab. XII. fig. 4.)

Late ovatus, postice attenuatus, nigro-fuscus, vix nitidus; prothorace fasciaque obliqua in elytris et sutura antice tenuiter flavis; thorace subtiliter rugoso, macula basali picea opaca. Long. 15, lat. elytr. 8½ millim. ♂.

Mas. Segmentis ventralibus quinto et sexto medio flavis, septimo (apicali) apice bisinuato (?); pygidio apice truncato, simplici.

Hab. Costa Rica (*Van Patten*).

This is a very distinct species from any other known to me; but as there is only a single specimen, not in very good preservation, I cannot accurately define the apical ventral segment. It might almost be placed in *Aspidosoma*, but that the dorsal segments are acutely lobed at their external angles. It is of the pointed oval form of many *Hyas*; the antennæ, however, are as short as in the last species, and the eyes are large. The fascia commences as a wide oblong spot reaching half across the elytra, and then continued obliquely to near the apex.

ASPIDOSOMA (p. 53).

The larva figured on Tab. XII. fig. 26 is probably that of a species of this genus.

Aspidosoma laterale (p. 53).

To the localities given, add:—Mexico, Etla (*Sallé coll.*).

1 (a). **Aspidosoma cassideum.**

Aspidosoma cassideum, Mots. Etud. Ent. ii. p. 14[1]; Gorh. Trans. Ent. Soc. 1880, p. 84[2].

Hab. Costa Rica (*Van Patten*).—South America, Brazil [1] [2].

Differs from *A. laterale* only in its uniform rusty-brown colour; the elytra are equally but not more attenuated behind. I do not think it will prove to be distinct;

but only one specimen, and that in bad condition, is in Van Patten's Costa-Rica collection.

Aspidosoma ægrotum (p. 54).

To the localities given, add:—Costa Rica (*Van Patten*); Panama, Tolé, Volcan de Chiriqui (*Champion*).

The Panama specimens are very pale, and want the lateral fuscous spot.

Aspidosoma ignitum (p. 55).

To the localities given, add:—Panama, San Miguel in the Pearl Islands (*Champion*).

Aspidosoma bilineatum (p. 55).

To the localities given, add:—Mexico, Cordova (*Sallé*, *Höge*), Presidio (*Forrer*); Costa Rica (*Van Patten*).

Aspidosoma costatum (p. 55).

To the localities given, add:—Mexico, Ciudad in Durango (*Forrer*); Guatemala, near the city, Chacoj (*Champion*); Panama, Bugaba (*Champion*).

The specimens from Bugaba are of the variety noticed as from Cerro Zunil and Las Mercedes.

10. **Aspidosoma ælianum.** (Tab. XII. fig. 6.)

Ovatum, antice et postice acuminatum, pallide fuscum; prothorace subdiaphano, vitta antice abbreviata cum maculis duabus utrinque hamatis, basalibus, conjuncta fuscis, disco parum miniato; elytris lineis duabus vel tribus pallidis; antennis, palpis, tibiis, tarsisque fuscis. Long. $6\frac{1}{2}$–10 millim. ♂ ♀.

Hab. Guatemala, Paso Antonio, Puerto de San José (*Champion*).

This is allied to *A. ignitum*, but distinguished by its smaller size, by its more acuminate form, and by the markings. The head is fuscous, with the base of the antennæ and mouth paler. The base of the legs and abdomen are pale, and those parts which are fuscous are still very lightly so.

This species was found on or near the coast. The resemblance to the Hemipterous genus *Ælia* has suggested the name to me. The least specimens are the smallest of this genus I have yet seen.

11. **Aspidosoma physonotum.** (Tab. XII. fig. 7.)

Ovatum, antice posticeque subacuminatum, pallide testaceum, diaphanum; prothoracis disco indistincte rubido; elytris viridibus, marginibus explanatis subdiaphanis, macula haud bene discreta pone medium fusca; capite abdominisque basi miniatis. Long. 10 millim. ♂.

Mas. Segmentis ventralibus quinto et sexto brunneo-eburatis, lucidis.

Hab. Nicaragua, Chontales (*Janson*); Panama, Volcan de Chiriqui (*Champion*).

I have a species of *Aspidosoma* from Brazil which is closely allied to, if not identical with, this, and which bears a MS. name "*viridis*, Dohrn." I believe it has never been described; and as our insect may be a distinct species, I propose a name derived from its curious and extreme resemblance to a *Cassida* of the genus *Physonota*. I have only seen three specimens—the two recorded here and my own from Brazil; the diagnosis, with the aid of our figure, will enable collectors to recognize it. The brown tint of the luminous segments is probably due to the drying of the fluids.

PHOTURIS (p. 56).

Section I.

1 (A). **Photuris hectica?**

Lampyris hectica, Fabr. Syst. El. ii. p. 102??

Supra ochracea, subopaca; antennis, epistomate, palporum articulo ultimo, abdominis segmentis quatuor basalibus, tibiis tarsisque nigris; occipite, pectore femoribusque externe parum infuscatis; antennis filiformibus, haud serratis. Long. 13 millim. ♀.

Femina. Unguiculis simplicibus; abdominis segmentis quinto et sexto flavis medio lucidis, apicali obconico, apice leviter exciso, flavescente, medio fusco.

Hab. PANAMA, Bugaba (*Champion*).

The determination of this insect is necessarily conjectural, because there is only one female specimen. It differs from the species described here as *P. livida* in having a proportionally smaller thorax, which is not shining, and which has not the hind angles acute and produced backwards (as in the *P. collaris* section); and the antennæ are more filiform, with longer joints. I observe two minute blackish dots on the thorax, which may be accidental, as they are not placed symmetrically, one on one side of the centre and one in the middle near the base.

1 (B). **Photuris livida.**

Supra ochracea; prothorace nitido, disco rubricante, indistincte nigro vittato; capite, antennis, palpis, pedibus et corpore subtus nigro-fuscis, testaceo variegatis. Long. 17 millim. ♀.

Femina. Segmentis quinto et sexto ventralibus pallide testaceis roseo tinctis, unguiculis simplicibus.

Hab. PANAMA, Volcan de Chiriqui (*Champion*).

There is only one female specimen of this species in Mr. Champion's Chiriqui collections, and it is not possible to say for certain, in the absence of the male, to which section it belongs; I think, however, the male will prove to have split claws. The general form is that of *P. collaris*. The colour of the thorax and elytra is ochraceous yellow, and not unlike my specimens of *P. hectica*, Fabr. The elytra are flatter, and like those of the *P. collaris* section. The antennæ are not very long; the middle joints about twice as long as broad, very faintly serrate, black, excepting the underside of the basal joint and the extreme apex of two or three succeeding joints. The head is excavated between the eyes.

1 (c). **Photuris ——?**

Hab. GUATEMALA, Pampojilaj, department of Solola (*Champion*).

A single female specimen of a large pale *Photuris*, probably belonging to the first section, with simple claws in both sexes, occurred as above.

Photuris pennsylvanica (p. 59).

To the localities given, add:—MEXICO, Monclova in Coahuila (*Dr. Palmer*), Presidio (*Forrer*); BRITISH HONDURAS (*Blancaneaux*); GUATEMALA, Volcan de Atitlan (*Champion*); PANAMA, Volcan de Chiriqui 2000 to 6000 feet, Bugaba (*Champion*).

The specimens from Monclova have the elytra dark fuscous, the suture and lateral margins pale, and with a single, short, well-defined vitta.

11 (A). **Photuris frontalis.**

Photuris frontalis, Leconte, Proc. Acad. Phil. v. p. 337[1]; Gorh. Trans. Ent. Soc. 1880, p. 110[2].

Hab. NORTH AMERICA, United States, Georgia[1], Texas[2].—PANAMA, Volcan de Chiriqui 2000 to 3000 feet, Bugaba (*Champion*).

This species and *P. mollis*, Gorh. (*ante*, p. 61) are very close allies, and perhaps the latter is not distinct; yet, on comparing them carefully again with a larger example of the latter from Zapote, I find that the thorax is more coarsely punctulate in the examples from the State of Panama, and these latter are quite inseparable from specimens of *P. frontalis* from Texas in my own collection.

11 (B). **Photuris crassa.** (Tab. XII. figg. 12 ♂, 13 ♀. var.)

Oblonga, subparallela, parum nitida, ochracea; elytris interdum nigris variis; capite, antennis, palpis, pedibus, corpore subtus, vitta thoracica et scutello nigris. Long. 10 millim. ♂ ♀.

Mas. Unguiculis fissis; abdominis segmento quinto macula transversa eburata, subalbida, sexto plus minusve flavescente, apicali (septimo) apice producto, genitale superante.

Femina. Unguiculis simplicibus, segmento apicali rotundato, apice vix exciso, quinto macula flava nitida, sexto flavescente.

Hab. PANAMA, Bugaba (*Champion*).

Var. α. Ochracea; antennis, palpis, tibiis tarsisque nigris. ♀.

Var. β. Ochracea; capitis vertice, antennis, labro, geniculis, tibiis, tarsis et abdomine nigris; mandibulis et palpis piceis.

Var. γ. Atra; prothoracis marginibus lateralibus et ore ochraceis.

Var. δ. Nigro-fusca; prothoracis marginibus lateralibus pallidis, disco rufo-brunneo, nigro vittato; elytris sutura et limbo laterali tenuiter pallide flavis.

Var. ε. Ut *var.* β; elytris autem nigro dimidiatis versus apicem. ♀.

Hab. MEXICO, Tuxtla, San Andres (*Sallé*); PANAMA, Bugaba (*Champion*).

Var. ζ. Ut *var.* γ; elytris autem magis opacis, ad humeros rufescentibus.

Hab. PANAMA, Volcan de Chiriqui 2500 to 4000 feet (*Champion*).

This species appears to be excessively variable in colour; so much so that of ten examples collected by Mr. Champion, no two are exactly alike. The head is black in all but one, but with the face below the insertion of the antennæ yellow. The thorax is transverse, rather square in front, with the margins hardly at all expanded, and the hind angles only a little produced; the disc has a short obsolete channel near the base. Four examples have no vitta, the others have a broad black vitta, shining in most, but dull and not so wide in var. δ and in one from the Volcan de Chiriqui. The scutellum is black or yellow, varying, as usual, with the mesosternum. The legs are black, or the femora as far as the knees are yellow; the tibiæ and tarsi are always black.

The figures are of a male of the type and a female of the var. ε, both from Bugaba.

Photuris amœna (p. 58).

To the localities given, add:—PANAMA, Bugaba, Volcan de Chiriqui 2000 to 3000 feet (*Champion*).

Var.? **nitida.**

Var. Nitidior; thorace disco, elytris totis, scutello, pectore pedibusque nigricantibus. ♂.

Hab. PANAMA, Volcan de Chiriqui 4000 to 6000 feet (*Champion*).

An error has occurred in the description of this species and of *P. facialis*, *both* claws being split, not, as I have stated, the external claw only: the fact is, it is not easy to see the fission of both claws at one time, or unless they are very clean.

The variety is very distinct in colour, but specimens occur in which the elytra have a pale margin and suture, and some with the legs more or less pale from the same locality; the species of this genus appear more variable in these respects than those of *Photinus*. This variety, to some extent, bridges over the distinction between *P. amœna* and *P. facialis*.

The variety with pale margins and suture simulates *Photinus volcanicus* from the same region, but is easily distinguished even from the above by the acute and rather produced angles of the thorax, the prominent head and eyes of the male, &c. It also occurs at a higher altitude.

Photuris lucidicollis (p. 58).

To the localities given, add:—PANAMA, Bugaba (*Champion*).

The few specimens I have seen from Bugaba have the disc of the elytra fuscous, the suture narrowly and the margins rather widely pale.

Var. **sordida.** (Tab. XII. fig. 11.)

Photuri lucidicolli quoad formam, thoracem et corpus congruens; elytris autem dimidio basali tabescente, ad basin plus minusve infuscatis, dimidio apicali nigro-fusco irregulariter determinato. ♂ ♀.

Hab. PANAMA, Volcan de Chiriqui 4000 to 6000 feet (*Champion*).

This curious race or variety of *P. lucidicollis* was found by Mr. Champion only in

one locality, by the margin of a little stream on the borders of the forest, at 4500 feet altitude. Several varieties of the species to which I attribute it are already known to me, the only peculiarity about this variety being that it is so locally confined to one spot and so nearly constant in pattern. About twenty specimens were collected.

Photuris simplex (p. 61).

One specimen, a single female from Costa Rica, referred to as doubtfully belonging to this species, is not identical with it, having the claws simple. It is a female of *P. crassa* or of a very closely-allied species.

Typical specimens of both sexes of this species have now been sent from the Volcan de Chiriqui, as well as several which vary considerably, and I am now disposed to unite *P. scapularis* with them; the arrangement of the different forms will therefore now be as follows:—

Photuris simplex, Gorh., *ante*, p. 61.

Hab. Costa Rica, Volcan de Irazu, Rio Sucio (*Rogers*, ♀); Panama, Volcan de Chiriqui 5000 to 6000 feet (*Champion*, ♂ ♀).

Mr. Champion remarks:—"This is one of five species of Lampyridæ occurring at a certain altitude (5500 feet) in the dense virgin forest on the Volcan de Chiriqui and not lower." But if, as I believe, the varieties mentioned here are conspecific, then we have simply the effect of a change in altitude producing a well-marked, though slight, change in colour and sometimes in size; even among these typical specimens some have the tibiæ and tarsi black, thus proving their specific instability.

Var. α. Geniculis, tibiis, tarsis et abdominis segmentis quatuor basalibus nigris.

Hab. Panama, Bugaba, Volcan de Chiriqui 2000 to 4000 feet (*Champion*).

Var. β. Similis varietati α; elytris autem ad apicem nigricantibus; capite et pectore fuscis.

Hab. Panama, Bugaba, Volcan de Chiriqui 2000 to 4000 feet (*Champion*).

Var. γ. Capite, elytris basi, macula humerali, tibiis tarsisque nigris. (*P. scapularis*, Gorh. ante, p. 62.)

Hab. Guatemala, Cerro Zunil, Panajachel (*Champion*).

Var. δ. Capite flavo; ore, antennis, palpis, pedibus, corpore subtus (abdominis segmentis tribus apicalibus exceptis) nigris, elytris maculis duabus subscutellaribus fuscis.

Hab. Mexico, Juquila (*Höge*).

PHENGODES (p. 63).

Phengodes bimaculata (p. 63).

To the localities given, add:—Panama, Bugaba, Volcan de Chiriqui (*Champion*).

Two specimens, one from each of the above localities, differ from the type in having

the centre of the thorax black as well as the scutellum; the one from the Volcan de Chiriqui is smaller, being 14 millim. in length; the other, from Bugaba, is a well-developed specimen, and, in addition to the differences already noticed, has the two basal joints of the antennæ yellow.

Mr. Champion informs me that these examples were attracted to light, the insect flying with a loud humming noise after the manner of *Atractocerus*.

Phengodes minor (p. 65).

To the Guatemalan localities given, add:—Sinanja valley (*Champion*).

Var.? Antennis articulo basali rufo; thoracis lateribus nigris.

Hab. GUATEMALA, Volcan de Atitlan (*Champion*).

DAIPHRON (p. 66).

Daiphron ochraceum (p. 67).

To the localities given, add:—PANAMA, San Lorenzo (*Champion*).

Var. Thorace nigro vittato.

Hab. PANAMA, Bugaba, Volcan de Chiriqui 2000 to 3000 feet (*Champion*).

Three specimens from the State of Panama have the scutellum ochraceous, and the two which have the thorax with a narrow vitta are also smaller and have their tibiæ and tarsi more decidedly black; in one example the apices of the femora being black as well.

Daiphron proteum (p. 68).

To the localities given, add:—

Var. *α*. Elytris versus apicem nigro-maculatis.

Hab. COSTA RICA (*Van Patten*).

Var. *γ*.

Hab. MEXICO, Presidio (*Forrer*).

CHAULIOGNATHUS (p. 68).

1 (A). **Chauliognathus heros.**

Chauliognathus heros, Guérin, Rev. Zool. 1843, p. 18[1].
Chauliognathus heros, var.?, Waterh. Trans. Ent. Soc. 1878, p. 326[2].

This fine species is distinguishable from *C. rex* (*ante*, p. 68) by the opacity of the black apical part of the elytra, and by its extending over half their length, also by the thorax being larger and transverse, and by the lighter yellow colour of the thorax and basal half of the elytra.

Hab. PANAMA, Volcan de Chiriqui (*Champion*).—SOUTH AMERICA, Colombia[1], Ecuador[2] (*Buckley*, var. ?).

3 (A). **Chauliognathus faustus.** (Tab. XII. fig. 14.)

Niger; prothorace opaco, roseo-rubido, subquadrato; elytris ochraceo-flavis, pallidis, quam thorax duplo latioribus. Long. 17–18 millim. ♂ ♀.

Mas. Segmento octavo convexo, flavo; segmentis ventralibus precedentibus albo roseoque marginatis.

Femina. Abdomine nigro, margine et apice flavis.

Hab. COSTA RICA (*Van Patten*); PANAMA, Volcan de Chiriqui 2000 to 4000 feet (*Champion*).

An elegant and curiously-coloured species: of the species recorded in this volume, apparently most nearly allied to *C. dimidiatus*, but with the thorax not so narrow as usual in that species, and generally of a singular rosy-red colour and spotless. Specimens occur, and that from Costa Rica is one, which have the thorax of the same yellow tint as the elytra. The scutellum is black, the front edge of the metasternum (but not the epimera) is yellow, as are the sides and apex of the abdomen, with the genitalia in the male. Most of Mr. Champion's examples were beaten from the withered and still attached leaves of fallen trees in the forest region.

Chauliognathus tripartitus (p. 71).

Chauliognathus janus (ante, p. 71).

Among a series of *C. janus* collected by Mr. Champion on the Volcan de Chiriqui at an altitude of 2000 to 4000 feet are two with the elytra wholly black, excepting the extreme apex, and also two or three agreeing in every respect with *C. tripartitus*, Chevr. I feel it necessary therefore to unite them as one species, for which Chevrolat's name has priority.

Chauliognathus distinguendus (p. 71).

To the Mexican locality given, add :—Huanchinango (*Truqui*).

Three female specimens which I refer to this species do not quite agree with Mr. Waterhouse's description, having the elytra as in *C. jucundus*, but with the yellow subhumeral plagæ united by a broadish fascia. They are also allied to *C. tabulatus*; but it is impossible, from a few females alone, to form an opinion on their specific identity or distinction.

Chauliognathus togatus (p. 71).

To the Mexican localities given, add :—Ventanas (*Forrer*).

Var. Elytris apice nigris, femoribus basi rufis.

Hab. MEXICO, Pinos Altos in Chihuahua (*Buchan-Hepburn*), Ventanas (*Forrer*).

11 (A). **Chauliognathus profundus.**

Chauliognathus profundus, Lec. Proc. Ac. Phil. 1858, p. 71[1].

Hab. MEXICO, Sonora[1] (*Schott*), Northern Sonora (*Morrison*).

This fine species is not unlike the variety of *C. togatus* with black apex to the elytra. It is, however, of a clearer and more shining red, and has the head red. The prothorax, in all the specimens sent by Mr. Morrison, has two thin linear marks like those in *C. bilineatus*.

Chauliognathus bilineatus (p. 72).

Var. Elytris triente apicali nigro. ♂. (Tab. XII. fig. 16.)

Hab. MEXICO, Saltillo in Coahuila (*Dr. Palmer*).

Var. Prothorace immaculato.

Hab. MEXICO, Pinos Altos in Chihuahua (*Buchan-Hepburn*).

Chauliognathus pallidus (p. 73).

To the localities given, add:—PANAMA, Volcan de Chiriqui 2000 to 6000 feet (*Champion*).

Chauliognathus œdemeroides (p. 73).

To the localities given, add:—GUATEMALA, Rio Maria Linda, Brito, Volcan de Atitlan, La Gavia, Pantaleon (*Champion*); PANAMA, Bugaba, Chorcha, Los Remedios, San Feliz, Tolé, Volcan de Chiriqui 2000 to 6000 feet (*Champion*).

Widely distributed and very abundant.

Chauliognathus exsanguis (p. 74).

To the localities given, add:—PANAMA, Bugaba, Tolé (*Champion*).

Var. Elytris versus apicem infuscatis, apice flavescente, margine basali et laterali linea tenui nigra marginatis.

Hab. PANAMA, Bugaba (*Champion*).

About a dozen specimens of the variety, with as many of the typical form of this species, were collected by Mr. Champion. The insect is usually wholly pale testaceous, with the exception of the antennæ, and even these are very pale fuscous; the variety has some resemblance to the species now described as *C. submarginatus*.

18 (A). **Chauliognathus submarginatus.** (Tab. VI. fig. 16, ♀.)

Pallide testaceus; elytris albescentibus; capitis basi, antennis, palpis, thoracis lineolis duabus, elytrorum margine laterali tenuiter, geniculis, tibiis tarsisque nigricantibus. Long. $6\frac{1}{2}$–11 millim. ♂ ♀.

Mas. Segmento octavo ventrali convexo, fusco.

Hab. NICARAGUA, Chontales (*Belt*, *Janson*); PANAMA, Volcan de Chiriqui 2000 to 4000 feet (*Champion*).

Although this is undoubtedly very near to *C. exsanguis*, I feel convinced it is really distinct. The head is black at the base; the thorax is more orbicular and more

narrowed towards the front, and is marked with a curved line on each side of the disc; and the elytra are not always margined, but have at least the shoulder black. The Chontales specimens are all of the smallest size, the Chiriqui ones larger.

The figure is taken from a female specimen from Chontales.

18 (B). **Chauliognathus sticticus.**

Angustus, pallide testaceus; elytris dilute fuscescentibus; antennis, palpis, occipitis macula antice bifurcata, femoribus externe, tibiis tarsisque nigricantibus; prothorace angusto, longitudinaliter trisulcato, maculis tribus irregularibus fasciam transversam undulatam præbentibus, nigris, macula intermedia sæpe obsoleta. Long. 9–11 millim. ♂ ♀.

Mas. Segmento octavo ventrali convexo testaceo, nitido.

Hab. PANAMA, Bugaba, David, Caldera in Chiriqui, San Feliz, Tolé, Volcan de Chiriqui (*Champion*).

18 (C). **Chauliognathus sagittarius.**

Pallide testaceus; capitis basi, antennis, palpis, thoracis lineola mediana sagittiformi, genibus, tibiis tarsisque nigris, elytrorum marginibus lateralibus in medio infuscatis; elytris corporis longitudine, postice attenuatis. Long. 8–10 millim. ♀.

Hab. PANAMA, Volcan de Chiriqui 2500 to 4000 feet (*Champion*).

Allied to *C. submarginatus*; but in addition to the difference of the thoracic mark (which is somewhat wedge-shaped and placed in the middle of the disc, reaching neither the front nor hind margins), the second and third joints of the antennæ are both very short, the third joint being only a little longer than the second, a character I have not observed in any of the allied species.

I have only seen three specimens of this species.

Chaliognathus lituratus (p. 74).

To the localities given, add:—PANAMA, Volcan de Chiriqui (*Champion*).

Chauliognathus nigriceps (p. 74).

To the localities given, add:—NICARAGUA, Chontales (*Janson*).

A single example from this locality has the front margin of the thorax black.

22 (A). **Chauliognathus pardalinus.**

Testaceus; elytris fuscescentibus; capite magno ochraceo, maculis quatuor (duabus basalibus, duabus inter oculos) nigris; prothoracis littera M, antennis, palpis, femoribus externe, tibiis tarsisque nigris. Long. 11½ millim. ♂ ♀.

Hab. PANAMA, Bugaba (*Champion*).

Two specimens only have been found at present of this remarkably distinct species. It is allied to *C. emaciatus* in the shape of its head, which is large, and not suddenly narrowed behind, with two large oblique spots on the base, partly hidden by the prothorax, and two large irregular but rather squarish spots between the eyes.

The mouth and the tips of the mandibles are black. The thorax has a very distinct M-like mark. The specimen, which is a male, has the terminal convex segment fuscous.

22 (B). **Chauliognathus corvinus.**

Ater, subopacus ; capite parum nitido, mandibulis prothoracisque lateribus flavis. Long. 7–10 millim. ♂ ♀.
Var. *a*. Elytris sordide flavis, apice nigris.

Hab. Guatemala, San Isidro (*Champion*); Nicaragua, Chontales (*Belt*, *Janson*); Costa Rica, Cache (*Rogers*); Panama, Bugaba, Boquete, Volcan de Chiriqui (*Champion*).

Allied to *C. apicalis*, but the elytra are not abbreviated as in that species, and usually wholly black in colour. In the variety with pale ochraceous elytra the degree to which the black extends at the apex varies, it being sometimes only the extreme apical margin which is fuscous, at others about one third of their length at the apex which is black. The lateral margin is very rarely pale; of about two dozen specimens with black elytra only one from Chiriqui is thus margined. The antennæ are shortish and compressed; the head black, but yellow in front of the eyes at the origin of the antennæ. The legs and underside are wholly black, with the sole exception of the membranous exposed portions of the thorax and the bases of the trochanters and tips of the coxæ.

I have found males of both colour-forms; the apical convex, or valvular, segment is black and shining.

Chauliognathus histrio (p. 75).

To the localities given, add:—Mexico (*Flohr*), Cordova, Jalapa, Playa Vicente (*Höge*), Presidio, Ventanas (*Forrer*).

23 (A). **Chauliognathus obliquus.** (Tab. XII. fig. 15.)

Flavo-testaceus; occipite, femoribus apice, tibiis tarsisque nigris; antennis, palpis elytrisque fuscis, his vitta obliqua et de humero ad apicem flava; elytris abbreviatis; alis fuscis. Long. 9–10 millim. ♂ ♀.

Hab. Mexico, Cerro de Plumas (*Höge*).

Head yellow beneath; crown as far as the eyes, and also the cheeks, black; mouth, antennæ, and palpi fuscous; antennæ moderately long (*i. e.* two thirds of the body's length), thin, and with the fourth to the last joints subequal and longer than the second and third taken together. Thorax with the sides subparallel, sometimes narrowing a little to the base, sometimes a little orbiculate, almost quadrate; there is a considerable depression on the hinder part of the disc, which is often contracted into a sulcus. Scutellum fuscous and with a yellowish tip, or yellowish. The elytra are fuscous, with a broad yellow stripe from the shoulder, which it entirely includes, running obliquely to the suture just before the apex, which is itself yellow. Wings fuscous. The male has the ventral valvular plate of the same yellow colour as the rest of the body.

A considerable series taken by Herr Höge.

23 (B). **Chauliognathus forreri.**

Flavo-ochraceus, opacus ; antennis, palpis, tibiis tarsisque nigris ; capite inter oculos nigro bimaculato ; prothorace maculis sex nigris, duabus anterioribus et duabus intermediis cuneiformibus, duabus basalibus transversis. Long. 11 millim. ♀.

Hab. MEXICO, Ventanas 2000 feet (*Forrer*).

I have as yet seen only three females of *C. forreri*. It is allied to a South-American species, the *Telephorus scriptus* of Germar and Castelnau, but is to be distinguished by the yellow head.

23 (C). **Chauliognathus hieroglyphicus.**

Sordide flavus, subnitidus ; capite, antennis, palpis, pectore, tibiis tarsisque nigris ; prothorace nigro-maculato, maculis plus minusve confluentibus, scutello elytrorumque basi maculis duabus nigris. Long. $8\frac{1}{2}$–9 millim. ♂ ♀.

Hab. MEXICO, Guanajuato (*Dugès, coll. Sallé*).

This species is in the markings of the thorax allied to the preceding, but it is of a shorter form, and shining instead of opaque. It is, moreover, very different in many details. The head is wholly black in all the individuals, eight in number, which I have yet seen. The thoracic spots are, typically—a wedge-shaped one in the middle of the front of the disc, an irregular one on each side of the middle of the base (formed of the transverse basal and two intermediate spots of *C. forreri* united), and an oblique one on each side not touching the margin; these spots coalesce in various degrees, the last to unite being the oblique lateral ones; in one example they are reduced to six as in *C. forreri*, but the other differences remain the same. The abdomen is spotted with black; the male has the valvular plate yellow.

23 (D). **Chauliognathus subulipennis.**

Latus, sordide rufus ; ore, antennis, palpis, femoribus apice, tibiis tarsisque nigris ; elytris opacis, fuscis, postice valde attenuatis, margine basali et laterali, epipleurali versus apicem late, et sutura tenuiter rufis ; prothorace valido, subquadrato, punctis quatuor sulcoque mediano obsolete impresso. Long. 13 millim. ♀.

Hab. MEXICO, Tehuantepec (*Sumichrast*).

A species not very nearly allied to any other here described, but which, in the absence of the male, cannot be very satisfactorily compared. Its broad thick build, with the elytra strongly narrowed from the rather wide base almost to a point at their apices, is alone sufficient for its recognition. The antennæ are rather long, and I observe that their third joint is nearly as long as the fourth, instead of being, as in some species of this section, much shorter. Three female specimens.

25 (A). **Chauliognathus —— ?**

Hab. MEXICO, Puebla (*Sallé*).

A single female example of a black *Chauliognathus* with a red thorax is probably distinct from *C. collaris*.

25 (B). **Chauliognathus exiguus.**

Nigro-fuscus nitidus ; ore et epistomate flavis, palpis rufo-piceis, prothorace flavo, disco obsoletius canaliculato utrinque tumido, postice nigro ; elytris nigro-fuscis, subnitidis, sutura margineque (basi excepta) tenuiter pallidis ; pedibus pallide flavis, tibiis ad apices tarsisque fuscis ; abdomine fusco, segmentis singulis margine laterali et apicali pallide marginatis. Long. 6–7½ millim. ♂ ♀.

Mas. Segmento sexto ventrali valviformi fusco.

Hab. PANAMA, Volcan de Chiriqui 3000 to 4000 feet (*Champion*).

Var. Thorace rufo immaculato. ♀.

Hab. PANAMA, Bugaba (*Champion*).

A species which at first sight is more suggestive of a *Discodon* or *Silis* than of the genus to which it belongs. It is not unlike *D. bivittatum*; but if the long maxillæ reaching beyond the mandibles, the relative shortness of the third joint of the antennæ (which is here not nearly so long as the fourth joint), and the claws which in the male are simple, and in the female the simple mandibles, are noticed, no confusion will arise. Only three specimens were captured; the variety from Bugaba is singularly assimilated to species of *Silis* (such as *S. jocosa* and *S. amicula*) from the same place. The elytra in this species are (in the male) not shorter than the body, in the female only a very little shorter.

30. **Chauliognathus scutellaris.**

Chauliognathus scutellaris, Lec. Proc. Ac. Phil. vi. p. 230 [1]; Trans. Amer. Ent. Soc. 1881, p. 44 [2].

Chauliognathus basalis, Lec. Col. of Kansas and Eastern New Mexico, p. 13 [3]; Trans. Am. Ent. Soc. 1881, p. 44 [4] (nec Lacord.).

Hab. NORTH AMERICA, Mexican boundary [1], Texas [2], Fort Bridger, and in the Black Hills [3], Colorado, and Utah [4].—MEXICO (*Sallé*), Monclova in Coahuila (*Dr. Palmer*).

I have united these two species, for it seems to me that Leconte has placed too much reliance on colour. This is often constant for limited localities, but of no use when extended districts are taken into account.

The smooth and shining disc of the thorax distinguishes this from *C. hastatus.* The elytra are always neatly margined; the black portion varies from less than a half to three quarters of their length. The specimens in Sallé's collection and one from Monclova have the thorax wholly yellow; some from Monclova have a triangular scutellar spot, others have a transverse bar on the base, most have a pentagonal mark occupying the disc of the thorax. The sides of the sterna are partly yellow. I have not found any examples in which the breast is wholly black.

31. **Chauliognathus limbicollis.**

Chauliognathus limbicollis, Lec. Proc. Acad. Phil. 1858, p. 71 [1]; Trans. Amer. Ent. Soc. ix. 1881, p. 44 [2].

Hab. NORTH AMERICA, New Mexico, Texas, and Colorado [2].—MEXICO, Sonora [1] (*Schott, Morrison*), Pinos Altos in Chihuahua (*Buchan-Hepburn*).

This is the species alluded to under *C. hastatus* (*anteà*, p. 78) as "*C. limbatus*, Lec.," in error.

The discrimination of species of this section is a matter of great difficulty and doubt. This species and *C. hastatus* have the disc of the thorax opaque; in *C. hastatus* the yellow margin of the thorax is wider, and the scutellar patch is almost always united, generally broadly, with the apical black. The Sonora specimens, which are typical, are small, with the abdomen nearly quite yellow; those from Chihuahua are larger, with each segment black with yellow margins, but they are variable. If, however, *C. hastatus* cannot stand, I think that the whole series (including *C. pennsylvanicus*, De Geer) will have to be merged into one species.

PODABRUS (to precede the genus *Discodon*, p. 78).

Podabrus, Fischer, Westwood, Introd. to Mod. Class. Ins., Gen. Synops. p. 27; Leconte, Proc. Acad. Phil. v. p. 343; Lacord. Gen. Col. iv. p. 352; Leconte & Horn. Class. Col. N. A. p. 210.

Although *Podabrus* is widely dispersed in the Nearctic region, we have not had before to record its occurrence in Central America; and there is no doubt the genus only just passes the northern border of our country. From the cooler parts of the North-American continent some forty species have been described; and it is probable that those of the Old World will not be less numerous when the Asiatic species are as well known.

1. **Podabrus mexicanus.**

Niger, parum nitidus, nigro-fuscus; ore, epistomate prothoraceque rufo-testaceis, hoc disco late nigro-fusco vittato; antennis, palpis et labro fuscis; abdominis margine obscure pallido. Long. 14 millim.

Hab. MEXICO, Pinos Altos in Chihuahua (*Buchan-Hepburn*).

Head subrugulose towards the base, pitchy black behind the eyes; front, including the antenniferous tubercles, testaceous red. Antennæ and palpi entirely fuscous black; the latter have the inner sides of their basal joints pale; extreme edge of the clypeus and tips of the mandibles blackish. The gular part of the head is yellow, but the sides of the neck beneath are fuscous. Thorax quadrate, slightly transverse; front and base truncate, the latter emarginate; sides nearly straight; disc with an obsolete impressed line. Scutellum dull fuscous. Elytra fuscous or leaden black, very finely coriaceous.

Underside of the body and legs fuscous black; only the extreme tips of the coxæ are pitchy. The lateral margins of the abdomen are pale but pubescent, and not clear or distinctly yellow.

Only two specimens have come under my notice. Their larger size will separate them from most of the species described by Leconte from the United States. They

have a small seventh ventral plate, and appear to me to be males and to pertain to Leconte's Section A (*Brachynotus*, Kirby), the tooth of the claw not being so long as the claw itself, but acute and adjacent.

DISCODON (p. 78).

Discodon erosum (p. 79).

To the localities given, add:—PANAMA, Volcan de Chiriqui 2000 to 3000 feet (*Champion*).

Two specimens occurred: these differ a little from the type in the colour of the tibiæ, which are pale at the base; the antennæ likewise have some of the apical joints ochreous in one of these examples.

Discodon plicatum (p. 79).

To the localities given, add:—MEXICO, Cordova, Jalapa (*Höge*); GUATEMALA, Las Mercedes, El Tumbador (*Champion*).

2 (A). **Discodon ——?**

Hab. MEXICO (*Sturm, coll. Sallé*).

A single female specimen of a large species somewhat allied to *D. plicatum*, but larger and opaque; the thorax transverse and white, and with a wide black vitta. It is labelled "*Canth. albolateris*, mihi," in the Sallé collection.

2 (B). **Discodon calidum.**

Lividum, nitidum; capitis vertice, antennis, palpis, thoracis vitta integra, scutello, abdomine, geniculis, tibiis tarsisque nigris. Long. 13 millim. ♂ ♀.

Mas. Prothoracis margine laterali medio plicato-interrupto, segmento septimo ventrali fisso.

Femina. Antennis articulis tribus ultimis lividis; prothoracis margine laterali medio leviter sinuato.

Hab. PANAMA, Volcan de Chiriqui (*Champion*).

A large species, at first sight very similar to a variety of *Silis varians*, but larger, and, of course, to be separated by the males having the outer claws of the front tarsi with a laminar tooth-like extension and those of the middle pair bifid. The three terminal joints of the antennæ in the male are fuscous.

Four examples, one male and three females, were collected by Mr. Champion.

Discodon carbonarium (p. 80).

Var. Thorace obscure rufo, disco nigrescente.

Hab. GUATEMALA, Quiche Mountains, Cerro Zunil (*Champion*).

The prothorax in this species has a wide shallow depression behind the middle. The elytra are rather shining, scarcely visibly sculptured.

Discodon marginatum (p. 80).

To the localities given, add :—MEXICO, Jalapa, Playa Vicente (*Höge*).

The Mexican specimens show more variation than those from Guatemala, the thorax in most of these being entirely yellow, but in one there is a black spot; the head is also variable, being black at the base in some, quite yellow in others; all are smaller and have less infuscate elytra, yet I should not think there is specific distinction here.

Discodon vitticolle (p. 81).

To the localities given, add :—PANAMA, Bugaba, Volcan de Chiriqui 2000 to 4000 feet (*Champion*).

Var.? Elytris nigris, callo humerali flavo, pedibus nigris.

Hab. MEXICO, Parras, Monclova, and Saltillo in Coahuila (*Dr. Palmer*).

7 (A). Discodon tenue.

Nigro-piceum, parallelum, subnitidum; ore, antennarum basi, prothoracis limbo, pedibusque basi flavis albescentibus. Long. $5\frac{1}{2}$–6 millim. ♂ ♀.

Mas. Prothoracis lateribus infra medium constrictis, disco utrinque bifoveolato, lævi; unguiculis intermediis et posticis externis fissis.

Femina. Prothoracis lateribus trisinuatis, angulis posticis acutis paullo productis.

Hab. GUATEMALA, Quiche Mountains 8000 to 9000 feet (*Champion*).

This little species is, in the mode of the constriction of the thorax in the male, allied to *Discodon carbonarium*, and, though smaller, reminds one very much of that species in its general form. The head, however, is less contracted behind in the male; the hind angles of the thorax in the female are more acute and prominent, and the margin immediately above them is deeply sinuate. The mouth and front of the head is whitish; the sides and basal margin of the thorax are white, the front margin very narrowly so, but it is only the reflexed edge that is pale. The coxæ, trochanters, and bases of the femora are pale whitish yellow; the margin of the first four segments of the abdomen, and the two apical and pygidial plates, are pale yellow.

7 (B). Discodon cinereum.

Atrum, subopacum; prothoracis limbo laterali tenuiter flavo. Long. 6–7 millim. ♂ ♀.

Mas. Prothoracis lateribus infra medium sinuatis, subconstrictis, margine supra medium dentiformi, incrassato; unguiculis intermediis et posticis externis fissis.

Hab. GUATEMALA, Calderas, Quiche Mountains (*Champion*), Volcan de Fuego (*Salvin*).

Very much like the preceding species at first sight, but wider; the body beneath, the head, and legs entirely deep black; the antennæ with their joints wider and compressed; the thorax differently notched in the male, its sides rufous; the elytra more rugose, with faint indications of striæ, and of a slight ashy grey tint, from the fine pubescence with which they are clothed (in many examples, however, this is not

very apparent). Owing to the small size of these two species the claws are not easily observed without the microscope; they are, however, split as in typical *Discoda*, and I have no doubt that they should be placed after *D. carbonarium*.

Many specimens, which scarcely show any variation, were captured by Mr. Champion at elevations of from 6000 to 9000 feet.

Discodon flavicolle (p. 81).

To the localities given, add:—MEXICO, Guajuco in Nuevo Leon (*Dr. Palmer*); PANAMA, Volcan de Chiriqui 2000 to 3000 feet (*Champion*).

It seems remarkable that this species has not been obtained at present in the intermediate provinces. The Mexican typical specimens have whiter and less shining thoraces, and the thorax is also shorter in the Chiriqui specimens; but otherwise I do not see that they differ.

Taken in some numbers by Mr. Champion. Only one specimen from Guajuco.

Discodon triste (p. 82).

To the localities given, add:—MEXICO, Ventanas (*Forrer*); GUATEMALA, San Gerónimo, Sabo, and Purula in Vera Paz (*Champion*); COSTA RICA, Rio Sucio, Volcan de Irazu (*Rogers*); PANAMA, Bugaba (*Champion*).

Discodon normale (p. 82).

To the locality given, add:—GUATEMALA, Totonicapam 10,000 feet (*Champion*).

Var. Elytris sutura margineque flavis.

Hab. GUATEMALA, Cubulco, Quiche Mountains (*Champion*).

Discodon perplexum (p. 83).

One female specimen from Misantla (*Höge*) is apparently referable to this species; it has the abdomen wholly dark, and the sixth ventral segment with an indistinct elevation in the middle, which is perhaps not normal.

An example (♂), possibly a variety, from Playa Vicente (*Höge*) has the lateral margins of the elytra broadly yellow.

The species alluded to as being possibly the female, under the name *Telephorus picticollis*, is that described at p. 89 of this volume as *T. lampyroides*, which, however, is, I now think, quite distinct.

Discodon cleroides (p. 84).

To the localities given, add:—MEXICO, Ciudad in Durango 8100 feet (*Forrer*).

Var. Prothorace limbo laterali tantum nigro.

Hab. MEXICO, Toluca (*Sallé*).

The species of Cleridæ alluded to (p. 84) as closely resembling this species is *Colyphus ventralis*; smaller specimens resemble *C. telephoroides*.

Discodon photinoides (p. 84).

To the localities given, add:—Panama, Volcan de Chiriqui (*Champion*).

17 (a). **Discodon serricorne.** (Tab. VI. fig. 18, ♀.)

Nigrum, opacum; elytris amplis; capite subtus et epistomate flavis; prothorace aurantiaco, disco nigricante; antennis latis ad apicem attenuatis leviter serratis. Long. 10–12 millim. ♂ ♀.

Mas. Prothoracis margine laterali incisura obliqua parva paullo ante angulos posticos; unguiculis anticis internis, intermediis et posticis externis basi lobatis.

Hab. Mexico, Cuernavaca, Oaxaca (*Sallé*).

Var.? Thorace toto ferrugineo; capite nigro, mandibulis tantum rufis. ♀.

Hab. Mexico, Parada (*Sallé*).

Allied to *D. lugubre*. This species is distinguished by its yellow or rusty-red thorax, which in three specimens is clouded more or less with black, looking as though scorched. The curious almost semicircular opaque thorax, with the nick near the hind angles in the male, the claws of the males simply lobed, and the short antennæ (which are also widened and serrate), &c., in these two species, indicate a section of the present genus.

The figure is of a female from Oaxaca.

Discodon histrio (p. 86).

To the localities given, add:—Mexico, Saltillo in Coahuila (*Dr. Palmer*, ♂).

Discodon difficile (p. 86). (*Telephorus photurinus*, Tab. VI. fig. 19, ♀.)

To the Mexican localities given, add:—Yolos, Cuernavaca (*Sallé*).

The specimen from the last-named locality has the abdomen (except in the middle), the femora and coxæ of the anterior and middle legs, and the scutellum yellow; the transverse thorax and bulky build are the same, however, as in the type.

TELEPHORUS (p. 88).

Telephorus lampyroides (p. 89).

To the localities given, add:—Guatemala, Las Mercedes (*Champion*, ♂ ♀); Panama, Volcan de Chiriqui (*Champion*).

The capture of a single male example proves this to be a *Discodon*, as already anticipated. It is the largest species known at present, and not very closely allied to any of the genus, but may be placed next to *D. perplexum*. The specimens from Las

Mercedes are somewhat intermediate in colour between the type and the variety from Cerro Zunil. One from Chiriqui has the elytra quite yellow.

Telephorus mimetus (p. 90).

To the Guatemalan locality given, add:—Cerro Zunil (*Champion*).

3 (A). **Telephorus (Silis) cephalotes.**

Niger, nitidus; capite (macula occipitali excepta), prothorace (disco late nigro-vittato), pedibusque basi flavis; antennis sat longis articulis duobus apicalibus pallescentibus; elytris substriatis, parum nitidis, ad humeros indeterminate rufis. Long. 7–7½ millim. ♂ ♀.

Mas. Prothorace oblongo, lateribus oblique sat profunde constrictis, segmento ventrali septimo fisso.

Femina. Prothorace latiore, lateribus bisinuatis, angulo postico acuto, prominulo.

Hab. PANAMA, Bugaba (*Champion*).

Not unlike *Telephorus mimetus*, but differing in the shape and structure of the head and thorax, and in being more shining. The head is yellow, excepting a spot at the base; the antennæ have the two apical joints and half the preceding joint yellowish. In the male the thorax is elongate, with a deep lateral sulcus interrupting the margin obliquely; the disc is very uneven, broadly black, shining, and the base margined. The basal halves of the femora are yellow. The eyes in the male of this insect are conspicuously wider than the thorax. In the female the thorax is much more nearly quadrate. There is a very considerable likeness between this species and *Silis lineata*, the females especially being hard to distinguish; the males are, however, abundantly distinct, and we have received specimens of both species taken *in copulâ*.

5. **Telephorus (Chauliognathus?) hæreticus.**

Nigro-fuscus, subopacus, subdepressus; ore infra, coxis et femoribus, prothorace (disco excepto), elytrorum sutura et margine laterali tenuiter abdomineque flavis; tibiis fuscescentibus, tarsis nigris. Long. 7–10 millim.

Hab. NICARAGUA, Chontales (*Janson*); PANAMA, Bugaba, Boquete, Volcan de Chiriqui 2500 to 4000 feet (*Champion*).

Head black, shining; epistoma, labrum, and mandibles, as well as the maxillæ outwardly and the whole underpart of the mouth, yellow; but the palpi are dark. Antennæ a little compressed and widened in the middle, entirely black. Thorax very even, nearly quadrate, but with all the angles rounded; the disc blackish at the base, but this smoky black patch never touches the front margin, where it is only at the most shaded. Elytra dark or pale fuscous; the suture very narrowly, the margin less narrowly, yellow. Legs pale, touched with fuscous, especially at the tips of the tibiæ and tarsi. The breast and abdomen are fuscous, the latter with paler margins; the latter consists of six segments, with a very small seventh concealed within the small pygidial dorsal plate. At present I can find no difference by which to separate

the sexes. There is a pale variety of this insect which only differs in the fuscous parts being all very faintly expressed.

The characters of this species are, so far, only negative, and it can only be regarded as at present unclassified. The specimens are probably all females, and perhaps those of a *Chauliognathus*; but the legs are very short for a species of that genus. The system of coloration is like that of *C. histrio*.

About forty specimens were collected, chiefly on the Volcan de Chiriqui.

SILIS (p. 91).

Silis lycoides (p. 91).

To the localities given, add:—MEXICO, Toxpam, Cordova (*Sallé*); GUATEMALA, Sinanja valley, Cerro Zunil (*Champion*).

Var. Elytris ferrugineis, sutura basi nigra.

Hab. MEXICO, Cordova (*Sallé*).

The specimen described and figured is a female, and not, as I thought possible, a male. A much more extended acquaintance with the species of this genus found in Central America enables me to state that I now believe that *S. præmorsa* is the male of this species. All the specimens recorded by me as *S. lycoides* are females, although differing in the degree of sinuation of the lateral margins of the thorax, and varying in other characters. The type of *S. præmorsa* is a male from Cerro Zunil; I have seen a female from the same locality, and this determination may therefore be considered highly probable, and is confirmed by a male specimen of a *Silis* from the valley of the Sinanja, which appears to be also that of *S. lycoides*. If this surmise proves correct, the latter is the name that should be adopted.

The specimens quoted from Mexico, and those from Capetillo, Dueñas, and Cubilguitz, are to be removed from *S. lycoides*, the only females which I have seen being from San Gerónimo, Purula, and Cerro Zunil. There is a variety, however, of a female from Cordova, Mexico, with yellow elytra, which, I think, should be assigned to this species. The other specimens are referable to *S. varians*. The assignment of the right females to the males is a difficult problem, even to the collector, as different species frequently occur together; and the student of this group must beware of confounding females of species of *Discodon* with those of *Silis*. *Discodon histrio*, occurring in the same localities, is very likely to be mixed with both this species and *S. varians*, but may be known, *inter alia*, by the nick of the edge of the prothorax being some little way above the hind angles, which are themselves entire; and this nick is visible as a faint plication in the female.

S. lycoides, in both sexes, may be at once known from *S. varians* by the antennæ not being compressed; the joints are round and cylindrical; in the male some of the intermediate joints, as the sixth to the eighth, have an impressed line, as in some European *Telephori*.

1 (A). **Silis nodicollis.**

Nigro-fusca, parum nitida; capite, prothorace elytrisque ochraceis tenuiter pubescentibus. Antennis brevibus, compressis, dense pubescentibus, articulo secundo perbrevi, tertio ad decimum oblongo-subquadratis interne paullo serratis; prothoracis disco infuscato, rugoso, subopaco, circiter medium tuberculis nonnullis irregularibus, lateribus sinuatis, margine bicalloso, reflexo. Elytris distinctius tricostatis. Long. $7\frac{1}{2}$–8 millim. ♀.

Femina. Mandibulis fortiter curvatis, abdominis segmento apicali leviter emarginato, in medio lævigato, nitente.

Hab. Panama, Volcan de Chiriqui, 2000–3000 feet (*Champion*).

Var. Occipite nigrescente, elytris nigro-fuscis, humeris ochraceo-plagiatis.

Hab. Guatemala, Capetillo, San Gerónimo, San Juan in Vera Paz (*Champion*).

An extremely difficult species to apprehend. The type from the Volcan de Chiriqui is evidently the female of a species of which I have not yet seen the male, and with it I am obliged to associate several examples from different localities, which are all females, but agree in having the antennæ densely pubescent, and more rigid, and with the joints more closely connected than usual; at the same time all these specimens have the strongly bent jaws such as occur in *S. oblita*, and a small thorax nearly as wide as long, roughened with granulations and tubercular ridges, so that the whole insect most wonderfully resembles some of the Lycidæ; it is nevertheless undoubtedly a Telephorid.

There are specimens of this, or a closely allied species, from Mexico—Juquila (*Boucard*), Toxpam and Tuxtla (*Sallé*), which so nearly resemble *S. varians* as to be with difficulty separated, and which, for want of further material, I cannot assert to be conspecific with or distinct from this species.

Silis varians (p. 92).

Var. Nigra; capite prothoraceque flavis, hoc vitta mediana illo occipite nigricantibus, elytris humero et margine basali flavis.

Hab. Guatemala, Dueñas, Torola (*Champion*).

Several very closely allied species have to be discriminated here; the type of *S. varians* is a male example from San Joaquin. The specimens from Teleman I now separate under the name of *S. combusta*. The specimens from Panima with some others, including a large series collected in the State of Panama, I describe further on as *S. serrigera*. The characters given will suffice for their distinction, *S. varians* being smaller than either of its allies on the average, and among other characters I observe that the divided subapical segment of the abdomen appears to gape more than in other allied species, the fourth joint of the tarsi has its two lobes free, the antennæ are only moderately serrate or flattened, and are shorter than in *S. serrigera*.

2 (A). **Silis plateroides.**

Ochracea, leviter pubescens; elytris costatis; occipite antennis, tibiarum apicibus tarsisque nigris, abdomine fusco; prothorace subquadrato, disco inæquali, nitidulo, margine laterali ante angulos posticos leviter plicato. Long. 10 millim. ♀?

Hab. Panama, Bugaba (*Champion*).

Allied to *S. varians*, but the prothorax is more quadrate, and not distinctly nicked before the hind angles. It is also abundantly distinct by the colour of the body beneath and of the legs, the absence of any vittæ on the thorax, &c. Only three specimens have yet come under my notice, and they are so like *Plateros rubricatus* as probably to have been overlooked for it.

2 (B.) **Silis diversa.**

Testaceo-flava; occipite, antennis (articulis tribus apicalibus exceptis), tibiis, tarsis, elytrorum dimidio apicali abdomineque nigris; mandibularum apicibus palpisque picescentibus. Long. 9 millim. ♀.

Hab. PANAMA, Bugaba (*Champion*).

This species has a very great resemblance, and is, no doubt, very nearly allied to *S. serrigera*; but it is even more developed than the large females of that species from the State of Panama, and is wider behind, with the femora and knees yellow. The thorax is also entirely yellow, and does not possess any notch at the hind angles; the margin is a little thickened near the middle. The antennæ are widened in the middle, serrate and compressed as in *S. varians*, but with *three* joints at the apex yellow. The base of the head does not have a spot, but is indeterminately black between the eyes. The posterior part of the metasternum and the hind coxæ are partly black.

Only two specimens occurred.

2 (C). **Silis serrigera.** (*S. varians, var.* Tab. VI. fig. 1.)

S. varianti proxime affinis, flavo-ferruginea; antennis (articulis duobus apicalibus exceptis), occipite, macula basali capitis, thoracis linea mediana integra, scutello, sutura ad basin tenuiter, corpore subtus pedibusque nigris; prothorace oblongo, antice subangustato, margine basali truncato, angulis posticis minute excisis. Long. 8–9 millim. ♂ ♀.

Hab. GUATEMALA, Chacoj, Panima (*Champion*, ♂); PANAMA, Bugaba, Caldera in Chiriqui (*Champion*).

Var. Elytris triente apicali nigris. ♂ ♀.

Mas. Unguiculis anticis externis, basi dente angulari laminata; segmento ventrali sexto fisso; antennarum articulis secundo ad decimum lineola nitida impressa.

Hab. PANAMA, Volcan de Chiriqui 2000 to 6000 feet, Bugaba (*Champion*).

The characters which separate this species from *S. varians* are the longer antennæ with more acute serration of the intermediate joints, and with two joints at the apex yellow, this being most conspicuous in large females (I have seen examples in which the ninth joint is also partly testaceous); the longer thorax with a similar, but less deep, notch at the hind angle in both sexes, and the longer elytra, which are not so costate, the nervures only being faintly raised. The males are rarer than the females among the rather large series of specimens collected by Mr. Champion; but I have found three or four of the variety with black tips to the elytra, and there are two males, one from Panima and one from Caldera, of the type form, only that the latter differs in having the legs

yellow at their bases; this latter character seems usual in the males, in which sex the legs are also longer. It will be observed that I have noticed among the characters of the males of this species the impressed bright line which is present in the concave surface of the widened joints of the antennæ. This character, although I had not noticed it before, is common to other species, as *S. varians*, *S. lycoides*, &c.; and on examination I find it is faintly present in some species of *Discodon*, as *D. nigripes* and *D. flavicolle*, and it is known to occur in some European *Telephori*.

2 (D). **Silis combusta.**

Silidi varianti iterum persimilis, nigro-fusca, parum nitida; capite (macula occipitali excepta), prothorace (linea mediana nigra), elytrorum dimidio basali, coxis et trochanteribus, femoribus interdum exparte, ferrugineis; elytris subparallelis, costatis. Long. 7–7½ millim. ♂ ♀.

Var. α. Elytris totis ochraceis.

Var. β. Elytris nigro-fuscis, plaga humerali tantum rufa.

Mas. Prothorace oblongo, antice rotundato, lateribus prope medium, sat profunde, obliquiter incisis; unguiculis anticis externis basi lamello dentiformi; antennis magis elongatis.

Hab. GUATEMALA, Teleman in the Polochic valley (*Champion*).

This species was confounded by me, before I had seen the males, with the type of *Silis varians*, and it precisely resembles that species, and the varieties probably correspond. It may easily be distinguished in the male sex by the oblique constriction of the thorax, which is like that of many species of *Discodon*; the tooth or rather lamella of the front claws is, however, like that of the first section of *Silis* in this work. The antennæ of the male are longer, and their third to eighth joints are not expanded as they are in those of *S. varians*; they are however marked with impressed lines, as in that species, but not so distinctly, and the length of the intermediate joints is fully twice their width. With regard to the females, the antennæ are more expanded and shorter than in the males, but their thorax is more shining than in what I take to be the females of *S. varians*; the hind angles have a slightly emarginate notch parallel to the sides.

All the specimens from Teleman referred to under *S. varians* should be assigned to this species. I have not at present seen it from any other locality.

Silis nigrita (p. 93).

To the localities given, add:—GUATEMALA, Zapote, San Isidro, Las Mercedes, Sinanja valley (*Champion*); PANAMA, Bugaba (*Champion*).

The locality "Quiche Mountains" should be erased, the specimen from thence pertaining to *S. sepulchralis*.

4 (A). **Silis ocularis.**

Nigra, nitidula; ore, antennarum basi, prothorace pedibusque rufis. Long. 4 millim. ♂.

Mas. Oculis subglobosis, prominentibus; prothoracis margine laterali in medio hamato, juxta angulum posticum bilobato.

Hab. GUATEMALA, Paraiso, El Reposo (*Champion*).

This little species is near *S. nigrita* in form. The thorax is quite red, and is differently excised; the antennæ are very long, nearly as long as the body, and the eyes are very globular and prominent, with the head excavated between them, and shining black on the crown. There being but two male examples, I cannot give a very complete description, but it is evidently a distinct species.

4 (B). **Silis sepulchralis.**

Atra, subopaca; prothoracis margine laterali antice flavo; elytris subcostatis, intervallis crebre subrugose-punctatis; antennis pilosis. Long. $5\frac{1}{2}$–$6\frac{1}{2}$ millim. ♂ ♀.

Mas. Prothoracis lateribus antice flavis, ante angulos posticos profunde oblique incisis, angulo postico lamina nigra, apice angulariter excisa, instructo.

Femina. Prothoracis lateribus flavis, sinuatis, ante angulos posticos acutos, minute excisis.

Hab. GUATEMALA, Totonicapam 10,500 feet, Quiche Mountains 8500 feet (*Champion*).

This seems essentially a mountain species, the examples sent having been captured in the pine-forests at very high elevations, and is readily distinguished by its nearly wholly black colour and opaque and finely rugose surface; the notching of the sides of the thorax in the male is peculiar, the yellow portion of the sides ends in a prominent acutely angled projection, below which at the hind angle itself is a flat lamina, black, and with its apex notched; the angle thus appears bimucronate in some aspects, and it rises.

I have only seen one specimen from the Quiche Mountains; there were, however, six, including one female, taken by Mr. Champion at Totonicapam.

This would not strictly come within Section I. B, by the definition, but the structure is really the same as that in *S. hæmatodes*, but that in that species the upper portion of the margin does not project so much above the deep notch, and that the "lamina" is there a little above the hind angle and is only just reflexed, and only notched in some specimens.

Silis hæmatodes (p. 93).

Var. Femoribus (genibus exceptis) rufis.

Hab. GUATEMALA, Calderas 6000–7000 feet (*Champion*).

Three males of this variety have also their elytra more closely and finely coriaceous, but in this respect are similar to the specimens I have seen from Las Mercedes and Cerro Zunil. Since my description of this species was penned, quite a little series of species with red thoraces, and all closely allied and difficult to separate, have been sent. Typical *S. hæmatodes* are from a lower elevation, from Capetillo.

5 (A). **Silis melanocephala.**

Atra, nitidula; ore pallido, mandibulis apice picescentibus, prothorace rufo; antennis longis articulo secundo perbrevi. Long. $6\frac{1}{2}$ millim. ♂.

Mas. Oculis prominulis, prothoracis margine laterali juxta angulos posticos, inciso.

Hab. GUATEMALA, Capetillo (*Champion*).

Though I have only seen one specimen, a male, of this species at present, I have no hesitation in pronouncing it distinct—the chief characters being its black head and long antennæ; the very short second joint of the latter (which is here not longer than it is broad), but especially the position of the nick formed by the plication of the margin of the thorax, which in this and in *S. atripennis* is placed nearer the hind angle than in *S. hæmatodes*.

5 (B). **Silis aurita.**

Atra, parum nitida; capite, prothorace et scutello rufis; prothoracis margine laterali postice lamina submarginali, parum ampliato; elytris creberrime punctatis, substrigosis. Long. $5\frac{1}{2}$ millim. ♀?

Hab. Costa Rica, Volcan de Irazu (*Rogers*).

This species, of which there are only two specimens which I can with certainty assign to it, is certainly distinct from any of its allies here described, but it is very difficult to define the differences in such a manner as to cause it to be easily recognized. The head and thorax are bright red; the antennæ black, their second joint about half as long as the third; the thorax has a tumid convexity on each side of the central depression, and it appears narrowest in front, owing to the margin being plicate and thickened behind. There are two other specimens from Irazu taken by Rogers which may belong to this species, but which have the thorax nearly quadrate, without any process; these have the scutellum black, but as I cannot determine their sex I prefer not giving any decided opinion upon them; they are more nearly allied to *S. appendicularis*, with which the present species has clearly some affinity as well.

5 (C). **Silis transfixa.**

Nigra; capite, antennis, palpis, prothorace, scutello, et coxis anticis, læte aurantiaco-rufis; coxis intermediis et posticis ad apices, trochanteribus, tibiis tarsisque flavis; elytris subopacis, confertim coriaceis, undique tuberculis minutis seriatim ornatis, vel nitidulis, crebre subrugulose-punctatis. Long. $5\frac{1}{2}$–$8\frac{1}{2}$ millim. ♂ ♀.

Mas. Prothorace suborbiculato, infra medium oblique inciso.

Hab. Panama, Volcan de Chiriqui 4000 to 6000 feet (*Champion*).

This species is allied to *S. hæmatodes*, but differs in many respects; the head is wider, and the antennæ and all the other cephalic appendages are red. The thorax of the female is more oblong and is obliquely constricted on the sides; that of the male appears to present a curved thin acute spine on the anterior side of the nick, but this cannot always be seen. The legs are black, with only the extreme base red; usually only the front pair have any part of the femora red.

A small series was secured by Mr. Champion.

5 (D). **Silis fulvipes.**

Flavo-testacea, parum nitida; elytris griseis; pectore abdomineque infuscatis, segmentis apicalibus fulvis. Long. $5\frac{1}{2}$ millim. ♂ ♀.

Mas. Prothoracis lateribus minute incisis, segmento septimo ventrali fisso, pygidialis apice angulariter exciso.

Hab. PANAMA, Volcan de Chiriqui 4000 to 6000 feet (*Champion*).

Very nearly allied to *S. transfixa*; smaller, and with the elytra grey, and the legs entirely red; also distinguished by the fulvous apical ventral and dorsal segments, and by the narrow pygidial plate being notched, thus exhibiting two points at the apex.

Head wide, eyes prominent, antennæ and mouth-organs entirely red. Thorax subquadrate, a little angularly widened at the sides, where, in the male, it is nicked a little below the middle.

A small series was captured by Mr. Champion.

Silis eroides (p. 94).

To the localities given, add:—GUATEMALA, San Gerónimo (*Champion*); PANAMA, Bugaba (*Champion*).

Specimens of both sexes were captured at Bugaba; the males of these have the edges of the thorax more deeply laciniate, and the hind lobe longer and more developed than in the type; the thorax therefore looks less orbiculate, and the incision being hairy and complicate they are not easily recognized; the antennæ are very wide in the middle, the second joint is very short, and all the joints are hairy. The specimens from Cordova, of which I have only seen two, one of which has yellow elytra with only the suture dark at the base, are not satisfactorily connected with this type. Both are, I think, females, and should, I believe, be referred to *Silis lycoides*. [*Cf.* note upon that species, Suppl. *anteà*, p. 290.]

Silis lineata (p. 95).

To the localities given, add:—PANAMA, Volcan de Chiriqui, Bugaba (*Champion*).

Typical male specimens have the thorax not orbiculate, but elongate, with the margins deeply sinuate; but the form and mode of plication does not seem quite constant.

Many examples, mostly females, of a variety with yellow elytra with a dark sutural line at the base, and which seem more pubescent than others, occurred at 2500 to 4000 feet altitude; these closely mimic *Plateros ochraceus*, while some from Bugaba, as well as from the higher altitudes of Chiriqui, almost as nearly mimic *P. bugabensis*, and these have the elytra a little wider behind than usual, thus completing the illusion.

9 (A). **Silis lineola.**

Subparallela, nitida, nigro-fusca; capite (macula verticali excepta), prothorace (vitta mediana nigra), humeris pedibusque basi, flavis; elytris nitidulis, crebre subtiliter rugosis. Long. 5–6 millim. ♂ ♀.

Mas. Prothorace suborbiculato, margine laterali medio inciso; segmento ventrali sexto fisso; unguibus externis basi triangulariter lobatis.

Hab. GUATEMALA, Chiacam, Cubilguitz, San Joaquin, Panima, Teleman (*Champion*); PANAMA, Bugaba (*Champion*).

Var. Elytris basi (sutura excepta) flavis.

Hab. MEXICO, Jalapa (*Höge*).

This species is a very close ally of *S. lineata*, and is perhaps not quite satisfactorily distinguished from it. It is, however, in the male characters that the chief difference lies, the thorax in the present insect being of the form of the species of Section I. B, in which I have placed *S. lineata*. But in the typical males of *S. lineata* the thorax is not orbiculate, but is doubly notched, and has the minute projection at the hind angles which is found in the first Section of this genus, and rather resembles that of the first Section of *Discodon*. In addition to this sexual difference *S. lineola* is a narrower, more shining, and less pubescent insect; it has never wholly yellow elytra as have the Chiriqui specimens of *S. lineata*; and the antennæ have not the yellow apical joints.

9 (B). **Silis oblita.**

Nigro-fusca, nitida, pilosa; ore, antennarum articulis tribus vel quatuor ultimis, prothorace pedibusque pallide-testaceis, his tibiis tarsisque anticis, illo vitta discoidali, plerumque ad basin tantum distincta, nigricantibus. Long. 6–7 millim. ♂ ♀.

Mas. Oculis magis prominulis; prothorace suborbiculato, margine antice sinuato, infra medium plicato, minute inciso, angulo postico leviter producto.

Femina. Mandibulis fortiter curvatis; prothorace antice rotundato, lateribus leviter bisinuatis.

Hab. PANAMA, Volcan de Chiriqui 2000 to 6000 feet, Bugaba, Boquete 4200 feet (*Champion*).

Head black; mouth and antenniferous tubercles pale; palpi fuscous, pale at the base; eyes moderate, subglobular in the male, rather prominent in the female, owing to the head being suddenly contracted behind. Antennæ fuscous or black, with three, sometimes four, nearly white joints at the apex: they are pubescent, with erect hairs, a character which will separate this species and *S. ardua* from *S. paupercula*; their second joint short, not so much as half of the length of the third joint, but not so short as in *S. ardua*; in the males this joint is not more than one third of the length of the third joint. Thorax as in males of Section I. B, but with the plication and sinuation minute; it is nearly the same as in *S. ardua*, and very different from that of *S. paupercula*; in the female it is transversely subquadrate, the anterior angles rounded, the sides faintly bisinuate with a minute anterior callosity, the hind angles right-angles, with a minute production of the basal margin. Elytra finely, subrugosely, and very closely punctate, only showing faint indications of longitudinal lines; black with a grey, almost violet tint; occasionally the shoulder has the callus slightly pale. Legs, including the coxæ, testaceous, but the front tibiæ and all the tarsi at their claw-joints are fuscous. The apex of the abdomen is pale.

This is one of the most difficult species in this group to make out; closely resembling as it does several others, attention must be paid, in the first instance, to the relative length of the second joint of the antennæ and their pubescence, characters which separate a little group of the genus. The bent mandibles of the females I have as yet only observed in this species and *S. ardua*, but it will probably be found in some others. *S. nigrita* is difficult to separate, the males being very close to those of this species.

I have seen single specimens of an insect probably identical with this species from

Jalapa (*Höge*) and San Juan in Vera Paz (*Champion*), but as they are doubtfully identified I think it better not to assume hastily that they are so.

9 (c). **Silis ardua.**

Nigro-fusca, parum nitida; prothoracis margine laterali, elytrorumque limbo toto, ore pedibusque pallidis, his, tibiis tarsisque fuscis. Long. 6 millim. ♂ ♀.

Mas. Oculis magis prominulis; prothorace orbiculari margine sinuato, medio plicato interrupto.

Femina. Mandibulis fortiter curvatis; prothorace antice rotundato, basi truncato, lateribus leviter sinuatis, et ante angulos posticos minute excisis.

Hab. PANAMA, Volcan de Chiriqui 2500 to 6000 feet (*Champion*).

Distinguished from *S. paupercula*, which it very closely resembles, by the antennæ having the second joint very small, about or less than a fourth of the length of the third, by the disc of the thorax being dark, and by the form of the thorax in the male. From *S. oblita*, to which it is more nearly related in structure, by the colour of the thorax, by its being less shining and more pubescent, and by the antennæ being quite fuscous or black. About a dozen examples of this species were collected by Mr. Champion, mostly at the higher elevation.

9 (d). **Silis sicula.**

Atra, parum nitida; ore pallido; prothorace rufo, nigro-limbato, disco profunde sulcato et utrinque tumido; elytris subopacis, creberrime subrugulosis, punctis hic illic seriatis. Long. 6 millim. ♀.

Mas. Latet.

Femina. Mandibulis basi subdentatis, supra dentem fortiter incurvatis.

Hab. GUATEMALA, Purula (*Champion*).

Head black; mandibles, mouth, and epistoma yellow; antennæ shortish, intermediate (third to ninth) joints not more than twice as long as wide; palpi dark, only pale at their bases. The thorax is rather small, and its margins irregular, bisinuate before the hind angles, which are a little acute and prominent. The antennæ, legs, and underside of the body are dark fuscous, nearly black.

There are several species, of which this is one, of which the females have the mandibles strongly bent and subdentate at their bases, such as *S. oblita*, *S. ardua*, and *S. nodicollis*; from the former of these its dark legs and antennæ, and from both the latter the colour of the thorax and its form, separate it. At present I have only seen two females which I can assign to *S. sicula*.

9 (e). **Silis proxima.**

Silidi oblitæ valde affinis, nigro-picea, subnitida, parum pilosa; prothorace pallide-testaceo, nigro vittato, transverso, angulis anticis rotundatis, posticis subrectis, margine laterali (feminæ) ante medium minutissime plicato; pedibus flavis, tibiarum apicibus tarsisque fuscis; antennarum articulo secundo brevi, quam tertius triplo breviori. Long. 5 millim. ♂?♀.

Mas? Prothorace margine laterali antice tuberculari prominulo, infra tuberculum minute inciso, angulo postico acutiusculo.

Hab. GUATEMALA, Chiacam (*Champion*).

A species from Chiacam, of which there are four or five females, and one male somewhat doubtfully associated with them, which cannot be referred to *S. oblita*, for the jaws are not suddenly bent as in the female of that species; it is less hairy, the antennæ have not the pale apical joints, and are, moreover, shorter, with shorter joints. The male, which is from the same locality, is paler in colour, with a brighter orange-coloured thorax, the margin of which projects in front of the nick, but yet not as in *S. paupercula*.

9 (F). **Silis paupercula.**

Sordide nigro-fusca, sericeo pubescens; ore et epistomate, prothorace (vitta mediana excepta), antennarum basi, elytrorum sutura et margine laterali pedibusque pallide-testaceis. Long. 5 millim. ♂ ♀.

Mas. Prothorace, margine laterali antice tuberculari plicato, in medio oblique constricto.

Hab. GUATEMALA, San Juan in Vera Paz (*Champion*); PANAMA, Bugaba, Volcan de Chiriqui 2500 to 4000 feet (*Champion*).

Var.? Prothorace nigrescente, limbo laterali pallido.

Hab. PANAMA, Volcan de Chiriqui 4000 to 6000 feet (*Champion*).

There are a series of little species, of which this is one, occurring together and very difficult to separate from each other; I distinguish *S. paupercula* by the thorax in the male being formed very much like that of *S. pauxilla*, and it may perhaps be necessary eventually to remove it with that species to a new genus. The thorax is not orbiculate, and not "nicked," but viewed from behind with the body towards one, the front part of the margin projects on each side; this character will separate it from *Silis lineata*. The head is wide with projecting eyes; the antennæ two thirds as long as the body, free from the erect pile observable in those of *S. oblita* and *S. ardua*, and their second joint more than half as long as the third.

The variety almost exactly simulates *Photinus diurnus*, which occurs on the Volcan de Chiriqui at various altitudes up to 8000 feet, and it is remarkable that in this variety the antennæ are wholly fuscous, as they are in the *Photinus*, and the tibiæ and under surface of the body are also dark. I have often had occasion to remark that the varieties of many species, which occur either in higher latitudes or in higher altitudes, tend rather to melanism than those which from living in hotter regions are perhaps forced to seek the shade more, and hence from living in retirement, in rolled-up withered leaves of fallen trees, or in chinks and holes during the hot sunshine, are simply brown or even white. The brown species of *Chauliognathus*, Mr. Champion informs me, have this habit of secreting themselves in dried leaves of a similar tint.

9 (G). **Silis amicula.**

Nigro-fusca; antennarum articulo basali, ore, epistomate, prothorace, pedibus (tibiarum apicibus tarsisque exceptis) elytrorumque sutura et margine laterali testaceis; abdomine segmentis singulis pallide marginatis, segmento apicali testaceo. Long. $4\frac{1}{2}$–5 millim. ♂ ♀.

Mas. Prothoracis margine laterali antice plicato-sinuato, lamina parum prominula instructo.
Femina. Prothoracis margine laterali antice sinuato, leviter plicato.

Hab. Panama, Bugaba, David (*Champion*).

Head black, with the exception of the mouth and underside; antennæ very slender, not so long as the body, usually fuscous, with one or two joints pale at the base, or pale and becoming infuscate in the last four or five joints. Thorax reddish yellow, paler at the margins; quadrate in the male, transverse in the female. Legs pale; tibiæ and tarsi infuscate, the former sometimes pale. Elytra dark fuscous, slightly shining, margined with pale (almost white) testaceous, except at the base. Sides of the abdomen and each segment at its apical margin almost white; the apical divided segment in the male reddish yellow.

This little species is near *S. paupercula* (in colour it approaches *S. albicincta*), but it is more parallel in form and less vividly coloured than that species. The plication of the thorax is different, and more like that of *Plectonotum*; but the hind angles are not cut out, they are nearly rectangular; nor is the margin reflexed or thickened, excepting at the point where the fold takes place.

Eight specimens, all from Bugaba.

9 (H). **Silis nigroplectrum.**

Nigro-picea, nitida; prothoracis elytrorumque marginibus albis, abdominis segmentis singulis pallide marginatis; pedibus piceis, genibus pallidis. Long. 4 millim. ♀.
Femina. Prothoracis margine laterali antice plicato, plicula subtuberculari nigra.

Hab. Panama, Volcan de Chiriqui 2500 to 4000 feet (*Champion*).

There are only two females of this species, but it is clearly distinct from *S. amicula*, to which it is allied, and from which it is distinguished by its darker colour and the black disc of the thorax. The black fold in the margin of the thorax may of course not be always so coloured; but it appears to me that it probably will prove to be a good character, as this structure where it occurs is usually of a darker red or brown colour than the rest of the margin.

9 (I). **Silis chalybeipennis.** (Tab. XII. fig. 18.)

Nigra; capite, antennis, palpis, scutello prothoraceque læte rufis; elytris nigro-cæruleis, nitidis. Long. 7–7½ millim. ♂ ♀.
Mas. Prothoracis margine laterali ultra medium plicato, angulo postico profunde exciso.

Hab. Panama, Volcan de Chiriqui 4000 to 8000 feet (*Champion*).

A very beautiful and distinct species. The head, thorax, scutellum, and antennæ of a bright orange-red, and shining. The thorax is transversely subquadrate, with the front angles rounded off, the margins a little expanded and elevated; the anterior plication takes place a little behind the middle, the part below being a little thickened.

The elytra are of a dark steel-blue. The female is similar to the male, with the exception that the excision of the hind angles is less deep.

About a dozen examples were collected by Mr. Champion, one from the altitude of 8000 feet; all were found on leaves in the dense virgin forest.

12 (A). **Silis jocosa.**

Rufo-testacea; elytris nigris, basi excepta albo-cinctis; metasterno abdomineque nigricantibus, hoc segmentis singulis albo-marginatis. Long. $5\frac{1}{2}$–$6\frac{1}{2}$ millim. ♂ ♀.

Mas. Prothoracis margine laterali processu duplici lamellato, anteriore cultriformi, apice ciliato, posteriore contorto, disco foveola profunda punctiformi impresso.

Femina. Prothoracis disco postice leviter impresso, angulo postico minute exciso.

Hab. PANAMA, Volcan de Chiriqui, Bugaba (*Champion*).

This species was recorded (*antè*, p. 96) as a variety of *S. albicincta*, which it very much resembles; I have, however, distinguished it now for the following reasons:—The eyes are always much smaller in both sexes; the head, antennæ, and legs are red; the elytra in the male are more expanded behind; the processes of the thorax of the male are much more developed, and more distorted and confused. The mandibles of the female are very long and thin, evenly curved, not suddenly bent.

A considerable series was taken by Mr. Champion.

12 (B). **Silis torticollis.**

Nigro-fusca; ore prothoraceque fulvo-testaceis, hoc medio sæpe nigricante. Long. 5–$5\frac{1}{2}$ millim. ♂ ♀.

Mas. Prothoracis lateribus foliaceo-contortis, auriculatis, antice nigricantibus.

Femina. Prothoracis lateribus lamina subtuberculari parum elevata instructis.

Hab. PANAMA, near the city, San Miguel in the Pearl Islands (*Champion*).

Belonging to the same section as *S. dilacerata*, but wholly distinct by the very curious complicated structure of the prothorax of the males. The anterior lamellar process here takes the form of a hood, curving over two dentiform lamellar processes behind. Anything more complicated in the way of a twisted margin can hardly be conceived. Females of this section of *Silis* may easily be recognized by their antennæ, which in this group are rather short and flat and finely serrate in both sexes. The thoracic fovea is present in the male as a longitudinal furrow; in the female the disc is only somewhat uneven and tumid.

A small series was captured by Mr. Champion in the Pearl Islands, and one specimen near the city of Panama.

12 (C). **Silis festiva.**

Rufo-testacea, nitida; capite elytrisque nigris, his (basi excepta) albo-marginatis, illo ore rufo, pectore abdomineque fuscis. Long. $5\frac{1}{2}$–6 millim. ♂ ♀.

Mas. Prothoracis lateribus processu duplici lamellato, anteriore angulato hamato, disco foveola profunda punctiformi impresso; oculis magis globosis.

Femina. Prothoracis disco postice leviter impresso.

Hab. PANAMA, Volcan de Chiriqui (*Champion*).

Intermediate, as it were, between *S. albicincta* and *S. jocosa*. It is distinct, however, from the former by the red antennæ and legs, from the latter by the black head and larger eyes. Antennæ rather long and thin for a species of this section, very finely pilose, their second joint twice as long as broad, and rather more than half as long as the third. Head black, the palpi and mouth clear red; the eyes in the male are globular and prominent. The thorax is transverse; in the male it is more deeply lacerated and amorphous at the sides than even in *S. dilacerata*, the anterior process forming a sort of hook, and the posterior one is spine-like and projects over the shoulders; in the female it is widest behind, very slightly depressed, and the hind angles are somewhat thickened and reflexed. The scutellum, suture, and the lateral and apical margins of the elytra are white; and in this species the margin is flat and expanded towards the apex in the male. The legs are entirely red, and the subapical or divided segment of the abdomen in the male is reddish.

A good series of this species was collected by Mr. Champion.

S. festiva was at first considered by me to be a variety of *S. albicincta*, and is so recorded under that species at p. 96 of this volume.

12 (D.) **Silis ludicra.**

Nigro-fusca, parum nitida; prothorace, ore, scutello, elytrorum marginibus, antennarum articulo primo pedibusque, flavis, his, tibiis tarsisque fuscis; abdominis segmentis singulis margine apicali, apicalibusque totis flavis. Long. 5 millim. ♂.

Mas. Prothoracis margine laterali processu duplici laminato, anteriore hamato; extus pilosa, disco in medio fortiter fossulato.

Hab. MEXICO, Presidio (*Forrer*).

In such a difficult genus as this appears to be it is always unsatisfactory to describe a species from a single male. In this case there is little doubt however that the specimen described pertains to a distinct species. It is nearest to *S. festiva*, but in addition to the dark antennæ, tibiæ, and tarsi, the whole form (and especially the femora) is more robust. The anterior process of the thorax while it hooks round in something like the manner of that of *S. festiva*, has not the apical twisted bend so noticeable in that species, and does not leave so much space open between itself and the posterior one, but appears rather to rest upon it. In the single male example before me the fossa upon the disc is represented by a double punctiform impression, with a carina between, but this may only be accidental. There is, indeed, a female specimen from Jalapa (*Höge*) which may pertain to this species, and which I cannot associate with any other; but this has the legs dark and slightly built, and the elytra have the suture concolorous, and the lateral margins only very narrowly pale.

There is also one male from San José on the coast of Guatemala, which I think very doubtfully may be the same species.

15. **Silis longicornis.**

Nigro-fusca; ore prothoraceque flavis, abdomine fusco, flavo-marginato, vel flavo apice fusco; antennis quam corpus longioribus, articulis leviter serratis. Long. 8 millim. ♂.

Mas. Prothorace subquadrato, margine laterali pone medium leviter plicato vix interrupto.

Hab. Mexico, Oaxaca (*Boucard, coll. Sallé*).

This species bears a very puzzling aspect, for, unlike other members of the genus, the thorax, although the specimens are males, has scarcely any trace of the usual folding or excision of the thoracic margin. The great length and slight serration of the antennæ is, however, similar to that of the European species. The external claws appear thickened and laminate.

Three specimens from the Sallé collection are all I have seen.

16. **Silis sallæi.**

Fusca, nitidula; capite infra, ore, epistomate, et verticis macula, pallide-testaceis; prothorace testaceo, lineis duabus sublateralibus nigris; coxis et femoribus testaceis, his externe, tibiis tarsisque fuscis. Long. $6\frac{1}{2}$–7 millim. ♂ ♀.

Mas. Prothoracis disco lateraliter oblique sulcato, margine inflexo, tenuiter plicato.

Hab. Mexico, Cordova (*Sallé*).

Antennæ of the male about four fifths of the length of the body, those of the female shorter, fuscous, second joint very short, third and following joints subequal, very finely pubescent; apices of the mandibles and palpi pitchy. Thorax longer than wide, without any nick at the sides in the males, but, examined from the front, the margin runs downwards and backwards, so that the hind part of the black line becomes tubercularly raised; the inflexed margin is yellow. Scutellum and elytra fuscous, the latter and the legs finely pubescent; abdomen fuscous.

There are four specimens of this species in Sallé's collection, two of each sex.

17. **Silis coarctata.**

Fusca, nitidula; capite prothoraceque aurantiaceis, scutello flavo; elytris nigris, crebre subtiliter subrugose-punctatis; pedibus nigris, coxis anterioribus flavis. Long. 5 millim. ♂ ♀.

Mas. Prothoracis margine laterali oblique constricto plicato, segmento ventrali septimo fisso dehiscente.

Femina. Latet.

Hab. Mexico, Cordova (*Sallé*).

A species superficially resembling *Silis pauxilla*, but in addition to the red head and scutellum, the constriction of the thorax takes place in a different manner, it not having the margin thickened or prominent in front; the antennæ have their second joint shorter and the following ones much longer in proportion. The species, in short, belongs to another section. The antennæ of the male are very nearly as long as the body. The elytra are greyish black and dull. The centre of the thorax is rather broadly depressed.

Five specimens, all males, in the Sallé collection.

18. **Silis analis.**

Nigra, tenuiter griseo-pubescens; ore testaceo, maris abdomine ad apicem rufo, antennarum articulo secundo quam tertius dimidio breviori. Long. 5 millim. ♂ ♀.

Mas. Prothoracis margine laterali antice incrassato, pone medium oblique constricto; pygidio inflato cum segmento ventrali fisso et genitalibus rufis.

Femina. Abdominis apice summo tantum rufescente.

Hab. Mexico, Puebla (*Sallé*).

About the size of *Discodon cinereum*, wholly black above, with the exception of the mouth which is whitish. Head hardly so wide as the thorax, opaque, not suddenly contracted behind the eyes; basal joint of the antennæ very stout, second joint not very short, but half as long as the third. Thorax quadrate, the whole of the margin reflexed in the male; the thickening of the side commences a little below the front angles, where the margin is more reflexed and projects, till interrupted by the plica; hind angles a little prominent and thickened. The convex swelling of the pygidium in this species is remarkable, and its red colour will cause it to be easily recognized.

Two males and one female in the Sallé collection.

19. **Silis appendicularis.**

Statura et summa similitudine *Silidis pauxillæ*. Nigra, parum nitida; capite prothoraceque rufis, illo basi et occipite nigro; elytris perobsolete subtiliterque rugose-punctatis, fere coriaceis. Long. 4–4½ millim. ♂ ♀.

Mas. Prothoracis margine laterali paullo ante angulos posticos lamina obliqua dentiformi instructo, segmento ventrali septimo fisso.

Femina. Prothoracis margine laterali pone medium elevato plicato, segmento ventrali apicali minute exciso.

Hab. Panama, Volcan de Chiriqui 4000 to 6000 feet (*Champion*).

The extreme likeness of this insect to *S. pauxilla* renders a repetition of the general description of that insect superfluous. The structure of the thorax is different in both sexes. At present I have only found one example which I can certainly assert is a male; in this the plicate margin of the thorax runs into a lamina-like appendage close to the hind angles; this structure is quite different from that of *S. pauxilla*. The other differences are minute but quite sufficient; the elytra are more finely sculptured, more black and shining, and the thorax is not black near the front margin.

It would appear to frequent a higher altitude than the *S. pauxilla*, but there are a few specimens of that species, of a variety with a red head, which appear to have been found in company with this insect, and these render its discrimination the more difficult.

I have as yet seen only six specimens of this species.

20. **Silis pauxilla.**

Atra, parum nitida; ore, epistomate, antennarum articulo basali subtus, prothoraceque rufis, hoc margine antico nigrescente. Long. 3½–4 millim. ♂ ♀.

Mas. Prothoracis margine laterali ante medium tuberculari, incrassato, infra medium plicato constricto.
Femina. Prothorace latiore, margine laterali in medio minute plicato.

Hab. GUATEMALA, Cerro Zunil, Senahu in Vera Paz (*Champion*); PANAMA, Volcan de Chiriqui 2000 to 4000 feet (*Champion*).

Var. Pedibus basi testaceis. ♂ ♀.

Hab. GUATEMALA, San Juan in Vera Paz, Cubilguitz (*Champion*).

Var. Capite etiam rufescente basi tantum nigrescente.

Hab. PANAMA, Volcan de Chiriqui (*Champion*).

Head as wide as the thorax in the male, rather narrower in the female, well sunk in the thorax; eyes not large nor prominent. Antennæ not so long as the body; their second joint short, but not so short in proportion as in *S. minuta*. Disc of the thorax with a longitudinal wide impression, not very shining, having minute punctures and fine adpressed hairs. Elytra rather distinctly and subrugosely punctured. Legs black; palpi pitchy, apical joint of the maxillaries perhaps a little more widely hatchet-shaped than in its near ally *Silis appendicularis*.

We are indebted to Mr. Champion's indefatigable exertions for a series of specimens of this little species; these were chiefly collected on the Volcan de Chiriqui, but a few occurred in other localities; without such a series it might easily have been confounded with several species of *Silis* which occur with it. I cannot at present satisfactorily make out whether the claws are split; I believe, however, they are simple. The apical segment of the abdomen is divided as in *Silis* and *Discodon*

21. **Silis minuscula.**

Plumbeo-nigra, parum nitida, pube brevi cinerea sericea densius vestita; ore, prothorace (vitta mediana excepta) pedibusque basi rufis. Long. 3½–4 millim. ♂ ♀.
Mas. Prothoracis margine laterali ante medium tuberculari, incrassato.
Femina. Prothorace latiore, fere integro.

Hab. GUATEMALA, Zapote, San Isidro, Cerro Zunil (*Champion*).

Very closely allied to *S. pauxilla*, and agreeing with it in the relative length of the joints of the antennæ, and the male characters, but differing in the legs being red at the base, in the black vitta of the thorax, and the silky grey pubescence of the elytra. The antennæ have the two basal joints pale red, only touched with fuscous above; they are longer in the males than in the females; their second joint is not very much shorter than the third. The coxæ, trochanters, and femora, except at the tips, are red. The apical ventral plate is divided in the males, but does not gape.

22. **Silis minuta.**

Atra; ore pedibusque basi testaceis; prothorace rufo, nigro-vittato, antennarum articulo secundo perbrevi. Long. 3¼–4 millim. ♂.

Hab. GUATEMALA, Zapote (*Champion*).

Very near to *S. minuscula*, but distinguished at once by the second joint of the antennæ being very short, not more than a quarter the length of the third joint. Also as minor distinctions, but probably constant, the thorax is shorter, and the swelled portion of the margin is less prominent; the whole insect (especially the elytra) is more widened behind; the elytra are blacker, and not finely clothed with silky pubescence; and the antennæ are more pubescent (as in *S. oblita*).

Two specimens only were captured.

23. **Silis hilara.**

Nigro-fusca, cinereo-pubescens; capite, prothorace, scutello, antennis basi, coxis femoribusque (apicibus exceptis) rufis. Long. 5 millim. ♂ ♀.

Mas. Prothoracis margine laterali antice tuberculari incrassato et dilatato.

Femina (*var.*?). Prothorace transversim subquadrato, margine integro leviter sinuato; pedibus nigris.

Hab. Mexico (*Sallé*).

Var.? *Femina.*

Hab. Mexico, Cordova (*Sallé*).

In the proportion of the antennal joints, and in the structure of the thorax, this pretty little *Silis* is allied very nearly to *S. pauxilla*; in the colour of the legs it is similar to *S. minuscula*, but it appears to vary in this latter respect; it is larger than average specimens of the latter, but the largest female of *S. pauxilla* is equal to it, though more bulky. The red head and scutellum afford an easy distinction.

Two females from Cordova, and a male and female without special locality, are all I assign to it.

24. **Silis** —— ?

Hab. Mexico, Ciudad in Durango 8100 feet (*Forrer*).

A single specimen of apparently a distinct species, but not in a condition for description.

PLECTONOTUM (to follow the genus *Silis*, p. 97).

Plectonotum, Gorham *.

Plectonotum was adopted by me for a minute black species of Telephoridæ allied to *Silis*, but of which the margin of the thorax is not notched or nicked, but with a thickened reflexed edge in its front half, projecting like a tubercle, and the hind angle completed, and not defective or cut out in the male. This little species was captured by Mr. Whymper at Quito, Ecuador, at an altitude of 9500 feet, and was named by me *Plectonotum nigrum*. Among Mr. Champion's collections is one other species which it

* The description of this genus is unpublished as yet; it will appear in Mr. Whymper's forthcoming work on the higher mountains of Ecuador.

is convenient to separate from *Silis*, and which will, I believe, prove to be congeneric with the above-named insect. It is very similar in size and in its black colour, and, indeed, at first I thought might be identical. It is one of the smallest members of the whole family, and recalls in appearance an *Attalus* or *Anthocomus*.

1. **Plectonotum labiale.**

Aterrimum, nitidum; ore et antennarum articulis duobus primis flavis, pedibus piceis; prothorace transverso, angulis anticis obsoletis, margine laterali et frontali reflexo, incrassato, ante angulos posticos exciso. Long. 3 millim.

Mas? Antennis corporis longitudine.

Femina? Antennis quam corpus brevioribus.

Hab. PANAMA, Volcan de Chiriqui 2000 to 4000 feet (*Champion*).

Head and thorax shining, black, the former pale in front of the insertion of the antennæ. The antennæ in the male (?) as long as the body, simple, with a rather long curved basal and a very short second joint; the third and following joints as long as the basal and second together; in the female the third joint is shorter than these. The thorax has its disc convex, and faintly impressed in the middle. The elytra are shining, very finely and confluently punctured. The legs are pitchy, with pale trochanters and coxæ. Many examples were captured.

PARASILIS (to follow the genus *Plectonotum*).

Antennæ articulo secundo elongato, quam tertius vix breviore; in utroque sexu simplices, filiformes. Palpi maxillares articulo ultimo modice dilatato, cultriformi, margine interno compresso, leviter curvato; labiales articulo ultimo triangulari. Mandibulæ falcatæ, acutæ, basi intus compressæ et ampliatæ, haud dentatæ. Maxillæ breves, validæ, unilobatæ. Prothorax margine laterali fere simplici, maris parum sinuato. Pedes longi, unguiculis muticis. Abdominis maris segmentum septimum tenuiter fissum? Elytra integra sat dura, abdomen tegentia, creberrime sat fortiter punctata, apicibus læviuscula.

This genus is formed to receive two species of Telephoridæ of a very perplexing aspect. They are apparently members of the section to which the species here referred to *Silis* belong, and scarcely would have been separated by me from them but for the negative evidence of the absence of nearly all the especial characters by which those species, as a group, are known to me. The mandibles are not bent as in some females of *Silis*; the claws are not split or lobed. The second joint of the antennæ is not short, and, indeed, is longer than in any species of *Silis*. The fission of the seventh ventral segment of the males is not distinct, if, indeed, it really takes place (which, in the wrinkled state of very many of the segments, is not easy to ascertain). The thorax is nearly (but not quite) free from any plication or thickening of the margin by which the sexes can be known. The elytra are firmer than in any other Telephorid I can recall; and the general resemblance to a species of Cleridæ of the genus *Colyphus* is so strong as to suggest the idea that these species are not properly placed in this group. The only European genus to which I can liken it is *Pygidia*, from which, however, it differs in all its details, except the strong punctuation of its elytra.

1. **Parasilis colyphoides.**

Flavo-testacea, subnitida; antennarum articulis sex apicalibus, pectore abdomineque fuscis; elytris fuscis, subcyanescentibus, crebre fortius punctatis; femoribus posticis dimidio apicali nigris. Long. $6\frac{1}{2}$–7 millim.

Hab. PANAMA, Volcan de Chiriqui 2000 to 6000 feet (*Champion*).

Head with the palpi and mouth entirely red. Antennæ long and thin, not quite reaching the extremity of the body, red at the base for five joints. Thorax red, as long as wide, margined, with all the angles rounded; disc shining, uneven, with a central channel, and a transverse impression, but not defined; the lateral margin is raised, but not strongly, and continuous, though it is a little sinuous and irregular in its degree of reflexion in different parts. The elytra are steel-blue, inclining to brownish or testaceous in the middle; the punctuation is coarse and crowded; one raised line is visible for rather more than half their length between the shoulder and the suture, and there is a trace of a second near the base; near the apex they are smoother and shining. The apical halves of the hind femora and the tips of the tarsi are black. Metasternum and abdomen fuscous black, the lateral and sometimes the apical margins of the abdomen pale. A large number of specimens were captured by Mr. Champion at various altitudes on the Volcan de Chiriqui.

2. **Parasilis vittata.**

Nigro-fusca, parum nitida; ore, palpis, femoribus basi, tibiis tarsisque, prothoracis margine elytrorumque vitta fere integra, pallide-testaceis; elytris crebre fortiter vix seriatim punctatis. Long. $5\frac{1}{2}$ millim.

Hab. PANAMA, Bugaba, Volcan de Chiriqui 4000 to 6000 feet (*Champion*).

Well distinguished from *P. colyphoides*, not only by the colour, but by the narrower and more graceful build, and by the head being more exserted and more suddenly narrowed behind the eyes. The thorax in the male has an oblique sulcus or constriction at about the middle of the side. The structure of the apical segments of the abdomen in one of the specimens, a male, is very singular, but, being in a soft condition, I cannot describe it accurately or certainly. It appears as if the sixth and seventh ventral plates were reduced to lateral filaments, while the dorsal or pygidial terminal plate is cleft and forms two lobes, terminating in two blunt points, which meet and form a sort of arch. I have not been able, however, on this single specimen, to satisfy myself that these lobes are really dorsal, and think they may represent the seventh ventral plate. Two specimens are all that have been found.

BELOTUS (p. 99).

Belotus abdominalis (p. 99).

To the localities given, add:—PANAMA, Bugaba, Tolé (*Champion*).

Several male specimens from Bugaba have the thorax pitchy black, with only the hind angles and the hind margin of the base very narrowly yellow.

Belotus maculatus (pp. 99, 100).

To the localities given, add :—PANAMA, La Caldera in Chiriqui, David, Bugaba, Tolé, Volcan de Chiriqui 2500 to 4000 feet (*Champion*).

This species was met with abundantly by Mr. Champion, especially at La Caldera, by beating various fruit- and other trees, principally in the open savanna region of the low country ; many examples were found upon the mango, calabash (*Crescentia*), and other trees cultivated by the natives in the vicinity of the settlements.

4. **Belotus** ——?

Hab. MEXICO, Jalapa (*Höge*, *Flohr*).

A single specimen from Herr Höge's collection, and one sent me by Mr. Flohr, of a fuscous-brown insect, 7 millimetres in length, and with very long filiform antennæ; the head and thorax smooth and shining, the elytra about half as long as the body. In the absence of more specimens, the determination of the genus is doubtful.

MARONIUS (p. 100).

Maronius dichrous (p. 100).

Var. Prothoracis disco (angulis posticis exceptis) nigro. (Tab. XII. fig. 17.)

Hab. PANAMA, Bugaba (*Champion*).

A rare species. A few examples only were captured, sitting on leaves in the virgin forest of the "tierra caliente."

THINALMUS (p. 101).

Thinalmus pectinicornis (p. 101).

To the localities given, add :—PANAMA, Taboga Island (*Champion*).

Thinalmus centrolineatus (p. 101).

About two dozen specimens of this species have been collected by Mr. Champion, at elevations of from 2000 to 4000 feet, on the Volcan de Chiriqui; these are for the most part males. In the few females which were sent the antennæ are acutely serrate, and the scutellum yellow.

MALTHINUS (p. 102).

Malthinus terminalis (p. 103).

A good many examples were captured at Bugaba. Of these the greater part have the thorax entirely pitchy black, the central channel terminating at the base in a deep groove, open behind, and only the terminal joint of the antennæ obscurely yellow.

Malthinus cruenticeps (p. 104).

Var. Prothoracis limbo, pedibusque totis, testaceis.

Hab. PANAMA, Volcan de Chiriqui 8000 feet (*Champion*).

Mr. Champion secured a very large series of about fifty specimens of what I consider to be a variety of this insect. They differ from the type in having the thorax more depressed and wider at the base, also in having it margined with yellow, and the legs entirely yellow. In one or two examples the smooth apex of the elytra is yellow. These examples were found by Mr. Champion by sweeping the undergrowth, chiefly consisting of Bambusaceæ, in the virgin forest at a high elevation.

Malthinus flavipes (p. 105).

After examining the specimens of *M. cruenticeps* collected by Mr. Champion on the Volcan de Chiriqui, I am not disposed to insist upon the specific distinction of this species; but as no specimen has occurred mixed with them similarly coloured to the San Gerónimo specimens, it will be better for the present to retain it as distinct.

8. **Malthinus** —— ?

Hab. MEXICO, Jalapa (*Höge*).

A species of *Malthinus* allied to *M. cruenticeps*. The thorax is apparently smooth; the elytra are similarly striate, but the punctures are coarser, and the tips are yellow. The single specimen is, however, immature, and not in a condition for description.

MALTHODES (p. 105).

Malthodes pallipes (p. 105).

To the localities given, add:—PANAMA, Bugaba, David, Tolé (*Champion*).

Many males are very small, about two to two and a half millimetres in length, and have the thorax apparently dull, perhaps only owing to change after death.

3. **Malthodes tetra.**

Nigra, opaca; antennis corporis longitudine, filiformibus; prothorace postice impresso. Long. $3\frac{1}{2}$ millim.

Hab. PANAMA, Volcan de Chiriqui 8000 feet (*Champion*).

The wholly black colour, with the exception of the mouth and front of the head, of this little species will distinguish it from *M. sanguineicollis*, which it resembles in form.

A single specimen only appears to have been met with.

MALTHASTER (to follow the genus *Malthodes*, p. 106).

Caput porrectum, postice valde angustatum. Antennæ filiformes, graciles haud serratæ. Palpi maxillares articulo ultimo interne dilatato, cultriformi; labiales breves, articulo ultimo subtriangulari. Mandibulæ inermes, æqualiter curvatæ. Prothorax lateribus deflexis, antice et postice subconstrictus. Elytra mollia, corporis longitudine, haud conspicue punctata. Pedes sat longi, graciles; tarsi longi; ungues simplices. Mas, abdominis segmento sexto ventrali fisso.

The insect for which I propose this new genus is like *Malthinus* in general appearance and in the form of the head. It differs, however, from that genus in the dilated palpi and fully-developed elytra, as well as the sexual character of the divided sixth segment of the abdomen. In this latter character it agrees with *Silis* and *Discodon*; but, as far as I can see, the claws are quite simple. The thorax is similar in the sexes, with the side margins very depressed; there is a small callosity on each side in front, and the posterior part of the disc behind has a subtubercular nodosity.

1. **Malthaster suturalis.**

Elongatus, sublinearis, sordide-testaceus; antennis, palpis, occipite, thoracis maculis duabus, sutura præsertim ad basin, tibiis tarsisque, infuscatis. Long. 6 millim. ♂ ♀.

Hab. Panama, Volcan de Chiriqui 8000 feet (*Champion*).

The head is contracted behind, as in *Malthinus*; the mouth, the mandibles, the underside of the head, and the epistoma are yellow; the palpi, especially at their apices, are dark fuscous. The antennæ are about three quarters of the length of the body, with elongate thin joints, which are pilose; the second joint is much longer than in *Silis* or *Discodon*, being two thirds of the length of the third, the remaining joints subequal, the terminal one longer. Thorax elongate, uneven, truncate before and behind, with slightly raised margins. Scutellum pale yellow. Elytra apparently very thin and soft, sordid bone-colour; the suture dark fuscous, widely so at the base, but the dark band running out at the apex. Underside testaceous, the abdomen fuscous except at its apex and margins. Legs pale; tibiæ faintly, tarsi darkly, fuscous.

About sixteen specimens of this species were found by Mr. Champion in the virgin forest at 8000 feet elevation, and apparently at no other part on the Pacific slope of the Volcan de Chiriqui; this locality appearing to be comparatively rich in peculiar forms of Malacodermata, as well as in other interesting species of Coleoptera.

PTORTHODIUS (p. 106).

Ptorthodius mandibularis (p. 107).

About twelve examples in all were captured by Mr. Champion at elevations of from 2500 to 4000 feet on the Volcan de Chiriqui; these do not differ much, nor can I discriminate the sexes.

Ptorthodius ramosus (p. 107).

To the locality given, add:—PANAMA, Volcan de Chiriqui 8000 feet (*Champion*).

A single example, found at a similar altitude to those captured on the Quiche mountains.

2 (A). **Ptorthodius** ——?

Hab. PANAMA, Bugaba (*Champion*).

A single example of an insect closely resembling *P. ramosus*, but captured at a lower elevation. It differs slightly in having the prothorax whitish, with only the central portion pitchy, and may be distinct from that species.

EURYOPA (p. 108).

Euryopa fusca (p. 108).

To the locality given, add:—PANAMA, Volcan de Chiriqui (*Champion*).

One specimen of this species found at an elevation of 2000 to 3000 feet and three at 8000 feet do not present any great difference from the type. The thorax is somewhat less infuscate, and in two examples is quite ferruginous. The eyes are smaller in the three examples from the higher altitude; but I am inclined to think this is a sexual difference, and that these are females.

Euryopa singularis (p. 109).

To the locality given, add:—PANAMA, Volcan de Chiriqui 8000 feet (*Champion*).

One example, which, however, differs much as do the examples of *E. fusca*, viz. in having smaller eyes. The head is more developed behind the eyes; the thorax is shorter. If not the other sex, this is a distinct species; on single examples it is hardly possible to form an opinion on the point.

2 (A). **Euryopa** ——?

Hab. PANAMA, Volcan de Chiriqui (*Champion*).

A single specimen of a very singular insect having 11-jointed simple antennæ, but in structure very like a small *Ptorthodius mandibularis*, and having the remarkably long head with an elevation on each side in front of the base of the antennæ, occurred as above. In our present state of ignorance of the sexes of these beetles I do not think it wise to do more than call attention to it.

Euryopa nigra (p. 109).

To the PANAMA locality given, add:—Bugaba (*Champion*).

A single example, which I think referable to this species, occurred at Bugaba.

MELITOMMA (p. 110).

Melitomma brasiliense (p. 110).

To the localities given, add :—Panama, Bugaba (*Champion*).

ATRACTOCERUS (p. 111).

Atractocerus brasiliensis (p. 112).

To the localities given, add :—Mexico, Presidio (*Forrer*); Costa Rica (*Van Patten*).

COLLOPS (p. 113).

Collops bipunctatus (p. 113).

To the Mexican localities given, add :—Northern Sonora (*Morrison*).

Collops tricolor (p. 113).

Collops tricolor, Horn, Trans. Amer. Ent. Soc. iii. pp. 80, 81.

Dr. Horn compares this species to *C. punctatus*, Leconte. The species which we have received from Morrison under that name differs considerably, and is perhaps not the species referred to by Dr. Horn. There are, however, several very nearly allied species probably confounded under this name. *C. tricolor* (typical form) has the head rufous in front as far as the insertion of the antennæ, of which the basal joint is entirely red; and in the male the large third joint is dark externally, and the succeeding joints fuscous; in the female the second and third joints are rufous externally.

Specimens occurred in Mexico at Oaxaca (*Höge*), at Etla and Parada (*Sallé*), and there was one in Sallé's collection from Sturm's. A variety (possibly an extremely closely allied species) has the dark colour of the head extending between the antennæ, so that they are inserted on a dark ground; these are from Oaxaca (*Höge*) and Puebla (*Sallé*).

A very curious hermaphrodite, or, rather, gynandromorphous example of this latter form has been sent from Oaxaca (*Höge*), of which a figure is given on Plate XIII. figg. 1, 1*a*. The antenna on the right side has a small clavate process arising from the basal joint, the fifth joint is enlarged and acuminate on its inner side, and with a mucro at its apex, forming together the clasping-organ for the retention of the female antenna during copulation, which is the object of all the various distortions we meet with in the male antennæ of the Malachiidæ. On the left side, however, the antenna is that of a normal female. The andromorphism, however, would not seem to extend to the whole of the body; for it happens that the tarsi of the male in *Collops* are four-jointed,

whereas in this specimen both tarsi are female or five-jointed. An examination of the other parts of the body does not reveal any other departure from the usual structure; but it is necessary to remark that the abdomen has shrunk, as it usually does in these insects, and is not easily examined.

Var. ?

Antennis brevibus, articulo basali externe fusco notato, articulis quarto ad octavum externe flavis. ♂.

Hab. MEXICO, Ciudad in Durango 8100 feet (*Forrer*).

This variety can hardly represent a distinct species, especially if the specimens I have seen from the United States with the antennæ nearly quite yellow are to be referred to *C. tricolor*. There is a very small female example from the same locality which may be mentioned here; it hardly differs from typical *C. tricolor*, except in size.

3 (A). **Collops frontalis.**

C. tricolori summa affinitate; niger, capite nigro-cyaneo, ultra oculos et antennarum basi læte flavis; prothorace brevi, plus duplo lato quam longus, ferrugineo; abdomine rufo, segmentis basi infuscatis; elytris violaceo-cæruleis. Long. $5\frac{1}{2}$–6 millim. ♂ ♀.

Hab. MEXICO, Oaxaca (*Höge*), Etla (*Sallé*).

This species is very close to *C. tricolor*, the most striking difference being that a greater amount of the head is coloured yellow in front; this colour extends to the eyes, so that one third of the eye is surrounded with yellow, and a sinuous line drawn between the front margins of the eyes will demarcate the yellow portion. The shortening of the thorax is very evident in the four examples I have seen. The colour of the elytra may, of course, be subject to variation, but is constant in these specimens.

There are three males and one female. The antennæ are coloured as in *C. tricolor*; the appendage of the third joint in the males is distinct, long, and curved, and nearly quite yellow.

Collops femoralis (p. 113).

To the locality given, add:—MEXICO, Presidio, Mazatlan, San Blas (*Forrer*).

Collops geminus (p. 113).

Var. pedibus basi rufis.

Hab. MEXICO, Presidio, Milpas 5900 feet (*Forrer*).

5 (A). **Collops validus.**

Collops validus, Horn, Trans. Am. Ent. Soc. iii. p. 82[1].

Hab. MEXICO, Yaqui river in Sonora[1] (*Dr. Palmer*).

Described as resembling *C. bipunctatus* in the head and thorax, and with elytra marked as in *C. quadrimaculatus*.

5 (B). **Collops balteatus.**

Collops balteatus, Leconte, Proc. Ac. Phil. vi. p. 230[1]; Horn, Trans. Am. Ent. Soc. iii. pp. 80, 83, 84[2].

Hab. NORTH AMERICA, United States[2], Texas (*Belfrage*).—MEXICO[1].

I possess specimens of this species from Texas, but have not seen it from MEXICO.

5 (C). **Collops quadrimaculatus.**

Malachius quadrimaculatus, Fabr. Ent. Syst., Suppl. p. 70; Syst. Eleuth. i. p. 308; Schönh. Syn. ii. p. 78.

Collops quadrimaculatus, Erichs. Entomographien, p. 58[1]; Horn, Trans. Am. Ent. Soc. iii. pp. 80, 82[2].

Hab. NORTH AMERICA[1], United States[2], Texas (*Belfrage*).—MEXICO, Ciudad in Durango (*Forrer*).

I have seen only one specimen from Mexico which I should refer to this species. *C. quadrimaculatus* may be known by its very small size, and by its having the head blue or greenish, excepting only the margin of the labrum. The legs are nearly black, but with reddish-brown tibiæ in some specimens; the abdomen mottled. In the examples I possess of the male the swollen third joint of the antennæ is wholly yellow.

Collops histrio (p. 114).

To the localities given, add:—MEXICO, Northern Sonora (*Morrison*), Ventanas, Ciudad in Durango (*Forrer*), Pinos Altos in Chihuahua (*Buchan-Hepburn*); PANAMA, Bugaba, Volcan de Chiriqui 3000 to 4000 feet, Peña Blanca (*Champion*).

Rather larger than *C. quadrimaculatus*, with more of the front margin of the head yellow, viz. as far as the insertion of the antennæ; and the large joint of the antennæ in the male always infuscate externally. *C. histrio* is duller than the following species.

The Mexican specimens are generally of a bright orange hue, and the size and shape of the blue spots vary. At San Gerónimo, where this species was locally very abundant, Mr. Champion found it on flowers in the sugar-cane fields.

6 (A). **Collops intermedius.**

Niger; capite antice antennarumque basi testaceis, articulis basalibus nigro notatis; elytris fulvis nitidioribus, basi maculisque duabus magnis subrotundatis subapicalibus cæruleis; pedibus nigris; abdomine ferrugineo, apice nigro. Long. 4–5 millim. ♂ ♀.

Hab. PANAMA, Volcan de Chiriqui (*Champion*).

Extremely close to *C. histrio*; rather larger, more deeply coloured, and more shining. The head has the front yellow as far as, and extending round, the base of the antennæ; the basal joint of the antennæ in the female has a blackish line on its upper surface, and the third and fourth joints are black on the inner half. Palpi black. The thorax is rich ferruginous red, covered with upright hairs, but not quite so thickly as in *C. histrio*. The elytra are of a deeper red than usual in the latter; the blue markings, and especially the hind spots, are more shining, owing to the coarser puncturing; in *C. histrio* the puncturing is so close as to be confused, whereas it is here so distinct that the separate punctures, though often confluent, are easily seen, and their interspaces are smooth. The breast and legs are black; the abdomen blood-red, but several of the segments are mottled with fuscous in an indistinct manner, the dorsal apex being generally black. After closely studying the large number of specimens secured by Mr. Champion on the Volcan de Chiriqui, one sees that they present remarkably constant points of difference from those from Guatemala and elsewhere, which I assign to *C. histrio*. Thus the larger amount of yellow on the front of the head is the same in all the Chiriqui specimens, with one or two exceptions, it being therefore probable that the original form or species (*C. histrio*) is mixed in small numbers with the new species.

7 (A). **Collops blandus.**

Collops blandus, Erichs. Entomographien, p. 60[1].

Hab. MEXICO[1], Presidio (*Forrer*).

Distinguished from *C. histrio* and allied species by the red legs and antennæ, and by the elytra being of an orange-red, with the blue markings less extended. In the seven examples before me collected by Mr. Forrer the tibiæ are a little darker than the base of the legs. Three of the specimens are males.

Collops vittatus (p. 114).

To the Mexican localities given, add:—Northern Sonora (*Morrison*), Saltillo in Coahuila (*Dr. Palmer*).

The specimens collected by Dr. Palmer and some of those from Sonora have a single, square, pitchy patch on the disc of the thorax; they also usually have entirely red antennæ, and are larger than the specimens from Sallé's collection, and probably differ quite as much as some of the allied species mentioned by Dr. Horn. All the species of this genus require a thorough revision.

9. **Collops punctatus.**

Collops punctatus, Leconte, Proc. Acad. Phil. vi. p. 164[1]; Horn, Trans. Am. Ent. Soc. iii. pp. 80, 81[2].

Hab. NORTH AMERICA, United States[1], Kansas[2].—MEXICO, Northern Sonora (*Morrison*).

Resembles *C. tricolor*, but is smaller and much narrower, with the abdomen black, and the tibiæ and tarsi rufous. Dr. Horn says that the elytra are more coarsely punctured than in *C. tricolor*; they are not so in the specimens before me, compared with *C. tricolor* from Oaxaca; in the latter separate punctures are easily observable; whereas in *C. punctatus* from Northern Sonora the punctuation is very close, confluent, and sometimes inclining to form rugæ. The antennæ are red at the base externally for four joints in the female, to which sex most of the specimens before me belong; in the male the basal joint and the external side of the second one are yellow.

ANTHOCOMUS (p. 114).

6 (A). **Anthocomus hepburnius.**

Nigro-piceus, nitidus; antennarum articulis basalibus et epistomate testaceis; prothorace rufo, bi-impresso, macula parva lineari nigra; elytris nigro-cyaneis, transversim subrugulosis, nitidis; femoribus anticis basi late rufis. Long. $2\frac{3}{4}$ millim.

Hab. MEXICO, Pinos Altos in Chihuahua (*Buchan-Hepburn*).

Head black, somewhat depressed in front between the eyes, and with a tubercle between the bases of the antennæ; the latter about equal in length to the head and thorax, rather more slender than in *A. ventralis*, Horn, and with the five basal joints testaceous beneath, the basal joint almost pitchy; labrum at its base pitchy, corneous; palpi and mandibles pitchy. Thorax not much wider than long, rich brick-red, not very shining, with a distinct spot, which is elongate and constricted in the middle; the surface of the whole disc finely alutaceous. Elytra not so long as in *A. ventralis*, more resembling those of *A. discimacula*, shining; when viewed sideways a transverse wrinkling will be observed, but the whole surface is subrugose; the humeral callus is evident. Legs pitchy black, pale at the articulation of the coxæ and femora; front femora broadly red at the base. Abdomen pitchy.

Both this species and *A. discimacula* are rather near *A. erichsoni*, Lec.; but they may be separated by the elytra not being clothed with a fine cinereous shining pubescence, which I observe in specimens sent me as the latter from Texas. The present species also is a little like *A. ventralis*, but differs in many minute particulars, notably in the nearly black abdomen, and the distinct spot on the thorax. From *A. discimacula*, to which it is evidently nearly allied, many small differences seem to separate it, *e. g.* the tubercle on the head, the spot on the thorax being small and not reaching the front, &c. There is unfortunately but a single example of this insect, so that it is impossible to say to what extent the characters given may vary.

9 (A). **Anthocomus opalinus.**

Niger; ore, antennis, pedibus, prothoracis limbo laterali et basali, elytrorumque margine laterali, flavis, his olivaceis, obsolete punctatis. Long. 2 millim.

Hab. PANAMA, Volcan de Chiriqui 4000 to 6000 feet (*Champion*).

Allied to *A. sapphirinus*, and with the elytra similarly smooth and iridescent; the antennæ, towards their apices, and the femora externally are infuscate. Unfortunately of two examples of this insect sent by Mr. Champion one has lost the head and thorax; in the other these parts are black, and the latter has the disc very smooth and shining. The elytra are longer than in *A. sapphirinus*, and cover the abdomen.

ATTALUS (p. 118).

1 (A). **Attalus verberatus.**

Niger; subtus rufus, metasterni lateribus piceis; capite (basi excepta), prothoracis margine basali, sutura dimidio apicali pedibusque, sanguineo-rufis, his, tibiis, tarsis femoribusque externe, nigris. Long. 4 millim. ♂.

Var. fascia elytrorum tenui etiam rufa. ♀.

Hab. PANAMA, Peña Blanca 3000 to 4000 feet (*Champion*).

Among the described species of *Attalus* recorded in the present volume this will be easily recognized by the colour; it, however, resembles an undetermined *Anthocomus*, of which there is a broken specimen from Tocoy. In the single male specimen of this species the head is red, black at the base, and with three black dots on the front. The antennæ are black, with several joints at their base yellow beneath. The front tarsi have the prolonged second joint of a lighter yellow colour than the rest of the foot. The suture of the elytra commences to be red shortly before the middle, and this colour also surrounds the apical margin. The whole insect above is very finely pubescent, but not so as to prevent its being shining. There is one female specimen only, and in this there is a narrow red fascia where the suture commences to be red; the head is black at the base, and touched with blackish between the antennæ.

2 (A). **Attalus cinctus.**

Attalus cinctus, Horn, Trans. Am. Ent. Soc. iv. p. 126 [1].

Anthocomus cinctus, Lec. Proc. Ac. Phil. vi. p. 166 [2].

"Black, abdomen pale yellow. Head black, anteriorly pale yellow. Thorax black, shining, base narrowly margined with yellow. Elytra black, slightly pubescent, lateral and apical margins and suture narrowly bordered with yellow. Legs pale yellowish testaceous. Length 3 millim."

Hab. NORTH AMERICA, Colorado river, California [1 2]. — MEXICO, Northern Sonora (*Morrison*).

Specimens of this insect received from Mr. Morrison are labelled *Attalus cinctus*. Leconte says, "The pygidium is black, margined with testaceous; the abdomen has two rows of piceous spots, the posterior tibiæ are piceous." This is so in the majority of specimens, but some appear to have the abdomen black beneath, as well as above, and would then appear to be *A. difficilis*, Lec., but I do not think the difference of specific value. *A. limbatus*, described in the former part of this volume (*ante*, p. 119), appears to differ in having a narrower head, which has more of the front portion yellow; in

having the sides of the thorax yellow and the legs entirely bright yellow; and is apparently a shorter and stouter insect.

2 (B). **Attalus tabogensis.**

Pallide flavus; capite prothoraceque nitidis, hoc disco, illo basi nigro-piceis; elytris opacis, pilosellis, vitta fusca; antennarum et tarsorum apicibus infuscatis. Long. $2\frac{1}{2}$ millim.

Hab. PANAMA, Taboga Island (*Champion*).

Allied to *A. limbatus*, and chiefly distinguished from that species by the very pallid and opaque elytra, which are often quite pale, with the exception of an elongate infuscate patch towards their apex, at other times they are dark fuscous with pale suture and margins. The head is usually yellowish as far as the middle of the eyes, but in one or two examples it is nearly all black, but even in these (which have at the same time blacker elytra) these latter are opaque. The male has the tip of the elongate second joint of the tarsi black. The female has the apex of the pygidium semicircularly cut out, and fringed with long hairs on each side. The male has a deep and long impression on the abdomen above, near the apex, extending over the greater part of the last segment.

About a dozen examples were obtained by Mr. Champion on flowers in the hot sun on the rocky slopes of the island of Taboga in company with other minute and interesting allied species.

2 (C). **Attalus fuscescens.**

Niger, nitidus; elytris ultra medium fusco-testaceis, antennarum basi, ore pedibusque testaceis, tarsis apice nigris; abdomine piceo, segmentis singulis albido marginatis. Long. $2\frac{1}{2}$–3 millim.

Hab. PANAMA, Taboga Island (*Champion*).

Head and thorax pitchy black and glabrous, the latter about as wide as long, and equal to the former in width; antennæ shorter than in *A. caraboides*, and darker at the tips, the three or four joints at the base yellow. Elytra not much widened behind, nor very convex, clothed with a very short fuscous pile; black at the base, and at about one third of their length shading insensibly into dirty pale livid-yellow. Legs yellow, the tips of the tarsi only blackish; sometimes the femora are infuscate. I have not detected a male, and therefore cannot affirm this to be a true *Attalus*. It is apparently allied to *A. caraboides*, but no such structure as I noticed in the trochanter of that species can be found here. Eight examples captured by Mr. Champion "on flowers in the hottest sun."

2 (D). **Attalus (?) calcaratus.** (Tab. XIII. fig. 3.)

Niger, nitidus; pedibus rufis, femoribus posticis piceis, abdominis lateribus, segmentorumque singulorum marginibus luteis; tibiis posticis ad apices calcarato-productis. Long. 2 millim. ♀.

Hab. PANAMA, David, Tolé (*Champion*).

Very closely resembling *A. nigroæneus*, but smaller, and with shorter antennæ, and

the elytra without any æneous tinge. The head and thorax are quite smooth, and the elytra only very obsoletely impressed. The last six joints of the antennæ, the claw joint of the tarsi, and the hind femora, are pitchy; the front and middle femora slightly pitchy at their bases. The hind tibiæ are a little bent, and beyond the insertion of the tarsi are produced into a mucro nearly equal in length to the first joint of the tarsus (Tab. XIII. fig. 3 *a*). This is a character I have not seen in any species of Melyridæ before. Three specimens were obtained.

2 (E). **Attalus subfasciatus.** (Tab. XIII. fig. 2.)

Niger, nitidissimus; prothoracis margine postico, elytrorum fascia antemediana, ad suturam interrupta, ad marginem dilatata, tibiisque anticis et intermediis, flavis; antennis articulis sex basalibus tarsisque piceis. Long. 2 millim.

Hab. MEXICO, Northern Sonora (*Morrison*).

One of the smallest species of the genus, hardly punctured anywhere, the elytra not much widened behind; the head wider than the thorax; the latter transverse, largely rounded behind, truncate in front. In general appearance resembling *A. caraboides*, the colour black, with a faint brassy tinge. In one specimen, in addition to the fascia, the elytra become pitchy red towards the apex.

A few specimens sent by the late Mr. Morrison, and labelled "*Attalus*, sp. n."

7. **Attalus cœlestinus.**

Niger; elytris chalybæis, nigro-pilosellis; prothoracis margine postico utrinque macula minuta, trochanteribus antennisque basi subtus, flavis. Long. $2\frac{1}{2}$–3 millim. ♂ ♀.

Hab. MEXICO, Northern Sonora (*Morrison*).

This little species must, to some extent, resemble *Anthocomus flavilabris*, Say, but is evidently distinct, and moreover is an *Attalus*, one specimen having the front tarsi when viewed from above four-jointed. The hind margins of the thorax are very indistinctly yellow on each side. The antennæ are faintly serrate in the male, the first four joints yellowish beneath and externally. The head is black, excepting the labrum. The legs are black, with the exception of the trochanters and the underside of the femora, which are yellow, in an undefined manner, in the front and middle pairs. Two specimens are all I have found among the insects received from the late Mr. Morrison.

8. **Attalus carinatus.** (Tab. XIII. fig. 4, ♂.)

Læte rufus vel sanguineus; antennarum articulis sex vel septem ultimis, femoribus extrorsum, tibiis tarsisque, nigris; elytris basi nigris, carina acuta, in callo humerali exorta, ante apicem desinente, munitis. Long. $3\frac{1}{2}$–4 millim.

Hab. PANAMA, Bugaba, Volcan de Chiriqui 2500 to 6000 feet (*Champion*).

Head and thorax very smooth and shining, without impressions, the latter orbiculate,

a little wider than long; tips of the palpi and of the mandibles pitchy, at least above; antennæ scarcely serrate, the five basal joints at least red. Elytra closely but distinctly punctured, depressed and flat in their basal half, evenly rounded and convex at the apex, in some specimens (female?) leaving two segments exposed, the suture closed; near the margin and springing from the shoulders is a well-defined carina extending two thirds of their length, and parallel to the true margin. Scutellum and body beneath red. The elytra often blood-red, sometimes yellow, with the base black, with a blue reflection; often, however, this patch does not quite touch the suture. Legs red; femora externally, and the tibiæ and the tarsi, black.

Taken by Mr. Champion on flowers in the open savanna country.

EBÆUS (p. 120).

1 (A). **Ebæus punctatus.**

Niger, nitidus; antennis pedibusque flavis, his femoribus, illis apicibus fuscis, palpis maxillaribus testaceis, basi apiceque nigris; elytris subcyanescentibus, crebre fortius punctatis, postice ampliatis. Long. 1½ millim.

Mas? Elytris abdomen tegentibus.

Femina? Elytris abdominis segmenta tria haud tegentibus.

Hab. PANAMA, Bugaba, David (*Champion*).

Not very different in general appearance from *E. seminulum*; rather larger, the elytra more of a blue-black in colour and very distinctly punctured. Antennæ almost entirely pale, and scarcely serrate; head and thorax very smooth and shining. Elytra thickly, sometimes confluently, punctured, and with scattered white depressed hairs. Hind tibiæ slightly curved.

A very few specimens of this species were met with.

LEMPHUS (to follow the genus *Ebæus*, p. 121).

Lemphus, Erichson, Entomographien, p. 131 (1840).

Lemphus was made by Erichson for a species of Malachiidæ, with the elytra much shorter than the abdomen, and with the tarsi four-jointed, or rather apparently so, for the fourth joint exists, but is very small and not easily seen. *Lemphus mancus* is from La Guayra in Venezuela; Erichson described a second species from Peru (*L. fulcratus*) in Wiegmann's 'Archiv' (1847), but from that time no other species have been made known.

1. **Lemphus serricornis.** (Tab. XIII. fig. 5.)

Fusco-testaceus; capite nigro, antice testaceo; prothorace rufo, vitta lata mediana maculaque utrinque nigris (maris disci dimidio frontali toto nigro); elytris fuscis vitta indistincta, margine reflexo suturaque dilutioribus; antennis nigris, basi flavis; pedibus testaceis, plus minusve infuscatis. Long. 3½ millim. ♂ ♀.

Mas. Antennis acute serratis, quam elytra longioribus.
Femina. Antennis quam elytra brevioribus, minus acute serratis.

Hab. PANAMA, Taboga Island (*Champion*).

Head black, shining, yellow in front of the eyes; front rather produced; palpi pitchy. Antennæ of the male of the length of the elytra; black, the first three joints yellowish, the joints from the fourth to the tenth triangular, acutely produced on the inner side, the apical one elongate and faintly cultriform; of the female they are one third less in length, all the joints, especially the apical ones, shorter. Thorax broader than long, red, with a broad black vitta not touching the base; in the male the front is black also, in the female there is only a spot on each front angle. Elytra clothed with a shining grey pubescence, and with a long but very fine pile (which extends over the whole upper surface); a deep sutural stria, and the margin, subreflexed. Four segments of the abdomen are left exposed in the female, in which sex the three apical ones are black, in the male they are all fuscous above. Legs testaceous, more infuscate in the female. One specimen only of each sex.

DROMANTHUS (p. 121).

1 (A). **Dromanthus laticornis.**

Niger; prothorace rufo, nigro vittato, nitido; ore abdominisque lateribus anguste rufis, coxis et trochanteribus rufo-piceis; elytris opacis, nigro-violaceis, parce pilosellis; antennis latis, serratis. Long. $4\frac{1}{2}$ millim.

Hab. PANAMA, Volcan de Chiriqui (*Champion*).

Allied to *D. decipiens*, but with the opaque elytra of *D. opacus*, from both of which the wide flat antennæ will distinguish it. It moreover differs from *D. decipiens* in the following respects:—the antennæ are black at the base, the thorax is wider and with a narrower black vitta, the elytra are less hairy and free from punctuation and have the suture and the margins neatly raised. The epistoma, mandibles, and maxillæ are reddish yellow, but the labrum and the palpi are black.

This insect presents a singular combination of the general appearance of the other Malacoderm groups: the smooth elytra of the Lampyridæ, the antennæ of the Lycidæ, and the thorax of the Telephoridæ; the four-jointed tarsi should, however, enable it to be recognized. It appears rare, three specimens being all I have seen.

1 (B). **Dromanthus nitidicollis.** (Tab. XIII. fig. 6.)

Niger; prothorace rufo, nigro vittato, nitido; elytris opacis, nigro-violaceis, parce pilosellis; antennis latis, serratis, articulo apicali albido. Long. $4\frac{1}{2}$ millim.

Hab. PANAMA, Bugaba (*Champion*).

Two examples. Resembles *D. laticornis* so nearly that it may prove to be a form of that species, but the white apical joint of the antennæ is a character usually indica-

tive of specific difference in the Malacodermata, and it is from a different locality; also closely allied to *D. discoideus* *.

Dromanthus jucundus (p. 123).

A second example of this species was subsequently found by Mr. Champion at Bugaba: this one is rather larger than the type, being five millimetres in length, apart from the three segments of the abdomen which pass the elytra, and from which I infer the specimen is a female. The head and breast are steel-blue, the abdomen yellow. In the type the two segments of the abdomen which are uncovered are bluish black. Both specimens were captured flying about timber in the forest.

HELCOGASTER ? (to follow the genus *Dromanthus*, p. 122).

Helcogaster, Boheman, Kongliga Svenska Fregatten Eugenies Resa, Zool. i. p. 81 (1858).

A genus of Melyridæ, founded by Boheman upon three species from Australia, somewhat resembling *Lemphus* and *Carphurus*, but with five-jointed tarsi, and (in some species) pectinated antennæ. The only recently added species is one from Honolulu, described and figured by Dr. Sharp in 'The Trans. Royal Dublin Society,' iii. series 2, p. 157, t. iv. fig. 20, *Helcogaster pectinatus*. The admission into the genus of this species and of the one here described must be considered only tentative at present. They are, however, very clearly allied to the Australian species, and, as far as I have been able to examine them on the limited number of specimens, have no other very near ally.

They may be known from small Malachiidæ by the hairy antennæ and abdomen.

1. Helcogaster (?) atratulus.

Aterrima, nitida, fere glabra; antennis serratis, articulo basali rufo; capite punctato, fronte inæquali; antennis articulis singulis intus, abdominisque apice, villosis. Long. 3 millim.

Hab. Panama, Tolé (*Champion*).

Var.? Minor; antennis tenuioribus, articulis duobus basalibus rufis; elytris piceis.

Hab. Guatemala, near the city (*Champion*).

This small insect, of which there is only a single specimen from each of the

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* **Dromanthus discoideus.**

Niger, nitidus; elytris opacis, prothoracis lateribus femoribusque basi rufo-testaceis; antennis fortiter serratis, articulis tribus basalibus subtus flavis. Long. $4\frac{1}{2}$ millim.

Hab. South America, Parana (*coll. Gorham*).

In general appearance very similar to *D. laticornis* and *D. nitidicollis* described above, the most apparent difference being that the thorax has the disc entirely black, leaving only the margin (and that most widely in front) yellow. The antennæ are not so wide as in *D. laticornis*.

localities cited, is very much like a small black *Attalus*, such as *A. caraboides* and *A. calcaratus*. Without having more specimens before me, I do not think it advisable to add anything to the short diagnosis given above.

CYMBOLUS (to precede the genus *Pristoscelis*, p. 123).

Corpus oblongum, parallelum, superne convexum. Caput in prothorace bene receptum; oculi fortiter granulati; antennæ quam caput cum prothorace longiores, ab articulo quarto inde serratæ, articulo ultimo ovato, haud incrassatæ; palpi maxillares articulo ultimo valde securiformi, labiales articulo ultimo incrassato apice acuminato. Prothorax transversus, lateribus deflexis, disco granuloso, areolis circa sex lævigatis elevatis fere tumidulis. Elytra fortiter et profunde punctata, parum pubescentia. Tarsi infra villosi; ungues lobulis membranaceis haud connatis muniti.

This new genus of "Dasytides" is not very near to any other known to me. It belongs to the first division of Melyridæ, in which the first joint of the tarsi is as long as or longer than the second; and among the genera composing this division it is remarkable by the hatchet-shaped joint of the maxillary palpi, by the somewhat bulky build, reminding one of a large *Cis*, and by the smooth tumid spaces on the thorax, as well as by the pitchy red colour and coarse punctuation. The sides of the prosternum are nearly parallel pieces meeting in the centre in a small mucronate projection, by which the coxæ are separated, the point not reaching so far as the coxæ. The reflexed portion of the pronotum is wide and finely rugulose, the hind angles re-entering slightly the coxal cavities, which are, however, widely open behind; the margin very finely crenulate. The mesosternum has a short projection in front, and a long thin one behind wholly separating the middle legs. Elytral epipleuræ hollowed, polished, and with crenulate external margins. The lobes of the tarsi are hard to observe owing to their soft villose nature, but are membranous and as long as the claws.

1. **Cymbolus rufopiceus.** (Tab. XIII. fig. 12.)

Oblongus, convexus, nitidulus, rufo-piceus; capite prothoraceque saturatioribus, longius pilosellis, crebre granuloso-subrugulosis, hoc areolis nonnullis glabris elevatioribus; elytris parcius profunde punctatis; antennis pedibusque rufis. Long. 7 millim.

Hab. GUATEMALA, San Gerónimo (*Champion*).

The whole of this insect is of a pitchy-red colour, the head, the smooth irregular spaces on the thorax, the breast, and the abdomen being a little darker, the appendages lighter. The intermediate joints of the antennæ are triangular, not longer than wide; the head is about half the width of the thorax, the latter as wide as the elytra and twice as broad as long. The eyes are rather large.

Found upon the flowers of small trees in second-growth woods (*Champion*).

2. **Cymbolus castaneus.**

Brevior, oblongus, rufo-piceus, subtus ferrugineus, nitidulus; prothoracis disco intricato-ruguloso, punctis

majoribus, lateribus crebre granulosis; elytris crebre et profunde punctatis; antennis nigris, articulis duobus basalibus rufis. Long. $6\frac{1}{2}$ millim.

Hab. Mexico, Oaxaca (*Höge*).

Nearly allied to *C. rufopiceus*; it is, however, more unicolorous, and in the two specimens before me the thorax does not exhibit the smooth raised spots, but is much more even, being, however, less granulose and more sparsely punctate in the centre than at the sides, and having the interstices of the punctures intricate and smooth. The colour of the antennæ is different, being here nearly black; and the abdomen and breast are rusty red. The elytra are broader and more closely punctured. The pubescence is short and fine and erect.

3. **Cymbolus punctipennis.**

Oblongus, elytris ovatis, nigro-piceus, nitidus; capite parcius punctato; prothoracis disco inæquali, tuberculis nonnullis subelevatis; elytris profunde punctulatis; antennis quam dimidium corporis longioribus. Long. $5\frac{1}{2}$–6 millim.

Hab. Guatemala, Calderas 6000 feet, Volcan de Agua 8500 to 10,500 feet (*Champion*).

This species differs in form from the two preceding, inasmuch as the thorax is less deflexed at the sides, which are straighter, narrowed a little in front, and rounded at the hind angles, while, the elytra being rather wider in the middle than at their base, the thorax does not appear to be of the same continuous width. The thorax is truncate in front, with a rather deep sinuation on each side just behind the eye; the margins raised, especially at the sides. The smooth spaces are less defined than in *C. rufopiceus*, but are very shining and distinct, although irregular in form, and somewhat confluent: there are four central ones, two exterior to these on each side, and one lateral rather more acutely raised than the others. The elytra are deeply impressed. The legs red, with the tibiæ and femora usually darker. There are three specimens from the Volcan de Agua and one from Calderas.

HOLOMALLUS (to follow the genus *Cymbolus*).

Corpus oblongo-ovatum, supra convexum, dense villosum. Caput prominulum, haud multum receptum; labrum distinctum; oculi subtiliter reticulati; antennæ breves, quam caput vix longiores, articulis quinque ultimis transversis, clavam elongatam formantibus; palpi maxillares articulo ultimo subuliformi. Prothorax transversus, convexus, antice recte truncatus, lateribus parum deflexis, angulis anticis et posticis rotundatis. Elytra haud profunde, crebre punctata, abdomen tegentia, ad apicem depressiuscula. Tarsi sat longi; ungues lobis tenuibus, haud connatis, minutis.

At first sight this genus reminds one of an *Arthrobrachys*, the first joint of the tarsi is, however, clearly longer than the second, and the joints are all very distinct. The thick and long pubescence gives this insect a very remarkable appearance, as the hairs are of varying lengths, and do not all stand evenly erect, but may be termed "shaggy."

1. **Holomallus aurivillus.**

Nigro-fuscus; elytris, abdomine pedibusque ferrugineis; dense aureo-villosus, sutura pone medium elevatiori. Long. 5–6 millim.

Hab. Mexico, Puebla (*Sallé*).

The head and thorax are dark fuscous, almost black, the former very closely and finely, the latter less closely and more deeply, punctured; both are very hairy, but the hairs upon the head are shorter and more scattered than on the thorax. The elytra appear to be rather thin in texture, widening a little behind the middle, but rather acuminate as well as depressed at their apex; their punctuation is nearly hidden by the dense and long golden-yellow pubescence, but is quite distinct, and here and there confluent; in the larger of the two specimens there is a faintly infuscate spot towards their apex. The abdomen is rusty red, but the extreme base and the apex are dark fuscous. The legs are red, the tibiæ clothed with long hairs externally.

There is a third specimen from Puebla, in Sallé's collection, of a species perhaps not distinct from the foregoing, but which is comparatively destitute of hair, and has, moreover, the elytra of the same dark fuscous colour as the head and thorax, excepting alone the apical, depressed, gibbous portion, which is rusty red, and clothed indistinctly with short greyish pubescence. Whether this specimen belongs to a distinct species or not it is impossible to say from the single individual.

DASYTES (to follow the genus *Holomallus*).

Dasytes, Paykull, Faun. Suec. ii. p. 156 (1798).

The type of *Dasytes* is *D. niger* (Linn.), a well-known European species. Mulsant's division of the insects usually comprised under this name has not at present met with general acceptation, and as the only species in the Central-American fauna is not sufficiently distinct to render its separation of any practical utility, it is not necessary here to enter on the question of how far those divisions are natural. The typical species are oblong hairy insects of small and generally uniform size, with serrate slightly thickened antennæ and subulate palpi; these are almost confined to the European and Mediterranean regions, where they usually abound when found in flowers; the earlier stages of some at least (e. g. *D. niger*) are passed in decaying wood.

1. **Dasytes hudsonicus.**

Dasytes hudsonicus, Leconte, Proc. Ac. Phil. xviii. p. 360 (1866)[1].

Hab. North America, Hudson's Bay [1].—Mexico, Northern Sonora (*Morrison*).

This is a black rather depressed species with almost simple antennæ, nearly smooth front tibiæ, and a short thorax with an impressed line on each side, between which and the margin the edge of the thorax is more thickly and rugosely punctured. It appears to be common in the border country of Northern Mexico and Texas, and therefore to have a wide range of distribution.

It is less hairy than the species of *Pristoscelis* usually are, and the elytra are very obsoletely sulcate towards their apices.

PRISTOSCELIS (p. 123).

Pristoscelis nigroæneus (p. 124).

To the Mexican locality given, add:—Monclova in Coahuila (*Dr. Palmer*), Puebla (*Sallé*).

This insect has of course nothing to do with *Dasytes nigroæneus*, Kust. (Käfer Eur.), an Italian species. It is perhaps unfortunate that I overlooked the fact of there being a European species of *Dasytes* with this name, but as I retain the genus *Pristoscelis* I do not think it necessary to change it.

1 (A). Pristoscelis æneipennis.

Niger; capite prothoraceque crebre et subrugose, elytris parcius profunde, punctatis, his æneis; dense nigro-pilosellus; antennis quam caput et prothorax brevioribus. Long. 5 millim.

Hab. MEXICO, Ciudad in Durango 8100 feet (*Forrer*).

Rather larger than the largest specimens of *P. nigroæneus*, and chiefly distinguished from that species by the closer punctuation of the thorax and the sparser and deeper punctuation of the elytra. In this respect, as well as by the brassy colour of the elytra, it reminds one at once of the European genus *Haplocnemus*. The thorax is also inclined to a brassy tint, but the head is black and dull, the antennæ wholly black and rather hairy, and the legs black.

Three specimens.

1 (B). Pristoscelis rufipennis.

Dasytes rufipennis, Leconte, Proc. Ac. Phil. 1858, p. 71[1]; ibid. 1866, p. 356[2].

Hab. NORTH AMERICA, Arizona[2].—MEXICO, Sonora[1], Puebla (*Sallé*).

"Distinct by the large size (six millim.), and by the red elytra. Punctuation distinct but close, occasionally confluent, and of the kind termed 'stellate;' tibiæ reddish."

Two specimens from Sallé's collection.

1 (C). Pristoscelis suturalis.

Dasytes suturalis, Leconte, Proc. Ac. Phil. vi. p. 169 (1853)[1].

Pristoscelis suturalis, Lec. loc. cit. 1866, p. 354[2].

Hab. NORTH AMERICA, San Diego in California[1 2].—MEXICO, Northern Sonora (*Morrison*).

Elytra clothed with fine ashy rather erect pubescence at the sides and suture; legs red.

Taken by the late Mr. Morrison in some numbers on the Mexican border.

1 (D). **Pristoscelis femoralis.**

Nigro-plumbeus, subæneus, breviter nigro-pilosus, nitidus, creberrime punctatus; tibiis tarsisque fulvescentibus. Long. 5 millim.

Hab. MEXICO, Puebla (*Sallé*).

The head and thorax in this species are so closely and finely punctured that separate punctures are only visible under a very strong magnifying-power; this, and the rather broader thorax, which is less narrowed in front and less deflexed at the sides, together with the reddish legs (excepting the femora), will distinguish it from *P. nigroæneus*; in other characters it is very similar to that species, but the pile will be observed to be both denser and blacker.

I have at present only found two specimens in Sallé's collection which I can assign to this species. There are, I suspect, a large number of species of *Pristoscelis* to be separated by very minute characters, of which this is one.

1 (E). **Pristoscelis fulvipes.**

Nigro-æneus, breviter pilosus, tenuiter pubescens, creberrime leviter punctatus; pedibus fulvis; antennis nigris, latiusculis, articulo tertio piceo. Long. 6 millim.

Hab. GUATEMALA (*coll. G. & S.*).

The large size and the red legs of this species are sufficient for its recognition, it being rather larger than *P. rufipennis*. The structure is generally the same as in that species; the mandibles are pitchy-red, except at their outer edge and tips, which are black; the antennæ have the six joints preceding the last one transverse, not noticeably serrate, the terminal joint not much longer than wide, blunt at its apex; the thorax is distinctly, not confluently, but thickly punctured; the elytra with close, somewhat confluent and stellate, punctuation.

One specimen, without precise locality.

4. **Pristoscelis fuscus?**

Dasytes fuscus, Leconte, Proc. Ac. Phil. vi. p. 169[1]?
Byturosomus griseus, Motsch. Bull. Mosc. 1859, ii. p. 395.
Byturosomus rufipes, Motsch., teste Leconte.

Hab. NORTH AMERICA, United States, California[1].—MEXICO, Pinos Altos in Chihuahua (*Buchan-Hepburn*).

Leconte omits to mention the colour of the legs of his insect; in the single specimen of what may possibly be this species, taken in Northern Mexico by Mr. Buchan-Hepburn, the legs are griseous and clothed with scales and hairs, the front femora being red within; the thorax is wider and more depressed than in any other species of the genus known to me; and the elytra are densely clothed with grey shining

pubescence. The antennæ are almost clavate, the three joints before the apical one being strongly transverse.

LISTRUS (p. 125).

3 (A). **Listrus ——?**

Hab. MEXICO, Jalapa (*Höge*).

A single specimen of a brassy *Listrus* with red legs, and the thorax not so wide as the elytra, these latter being very distinctly punctured, is, I think, a distinct species from *L. æneus*; but I do not think it advisable to describe on a single specimen in such a difficult genus as this evidently is.

Listrus canescens (p. 126).

To the localities given, add:—MEXICO, Saltillo in Coahuila (*Dr. Palmer*); PANAMA, Volcan de Chiriqui (*Champion*).

5 (A). **Listrus impressus.**

Nigro-fuscus, cano-pubescens; prothorace utrinque linea curvata impressa. Long. $1\frac{1}{4}$ millim.

Hab. MEXICO, Northern Sonora (*Morrison*).

A species in general appearance very like *L. canescens*, and like it sometimes evenly clothed with short ashy hairs and sometimes with denuded spots, but these are very irregular in position and number, and I cannot regard them, as Leconte has done in other species, as of any specific importance. The distinguishing character of this species is that the thorax has a distinct impressed line on each side at some little distance from the margin and parallel to it, something similar to that on *Dasytes hudsonicus*, but extending from the front to the hind margin. Its small size is also noticeable, the species being among the smallest yet described in this genus.

Several specimens.

Listrus punctatus (p. 126).

To the localities given, add:—PANAMA, Peña Blanca 4000 feet (*Champion*).

Taken abundantly on flowers in the open savanna-region, in company with *L. pygmæus*.

9. **Listrus pygmæus.**

Niger, nitidus; prothorace minute, elytris distinctius, punctatis, his subtiliter subrugosis, parce tenuissime pubescentibus; pedibus rufis. Long. 1–$1\frac{1}{4}$ millim.

Hab. PANAMA, Peña Blanca, Tolé (*Champion*).

This minute species, of which many specimens are scarcely one millimetre in length, is easily distinguished by its black colour with rufous (not bright red) legs and the very minute punctuation which, on the prothorax, is only visible under the microscope;

when thus viewed, however, it is seen to be sparsely punctured and clothed with white, almost pruinose, hairs. The elytra are flattish on their disc, shining, with scarcely any metallic tinge.

Met with in vast profusion on flowers in the open savannas east from Los Remedios to beyond Tolé by Mr. Champion.

10. **Listrus ferrugineus.**

Ferrugineus, fulvo-pubescens; elytris circa scutellum subinfuscatis, antennis brevibus, articulis duobus penultimis transversis, ultimo ovato apice nigro. Long. vix 2 millim.

Hab. MEXICO, Northern Sonora (*Morrison*).

This is the only species of *Listrus* known to me at present entirely red in colour, but I see no reason to separate it from that genus. The colour is a clear bright, almost sanguineous, red. Sometimes the crown of the head is dark, and the extreme tip of the claw-joint is, as usual, blackish.

It was sent by Mr. Morrison, labelled "*Pristoscelis*, n. sp." It is not, however, a *Pristoscelis*, not having the front tibiæ spinous, nor having upright pile on the body above. It appears to have been met with commonly on the border-district of Mexico. It is singularly like *Dasytiscus præcox*, a species occurring in Asia Minor, but has the antennæ much thicker and with shorter joints.

ASTYLUS (p. 127).

Astylus vittatus (p. 127).

To the locality given, add:—PANAMA, Peña Blanca (*Champion*).

Since the description was published in the earlier part of this volume, this species has been captured very abundantly on various kinds of flowers in open savannas from the sea-level up to an elevation of 6000 feet; some of the specimens, principally those from Peña Blanca, are of a paler yellow colour.

2. **Astylus octopustulatus.** (Tab. XII. fig. 25, ♂.)

Niger; capite prothoraceque crebre inæqualiter, elytris crebre subrugose, punctatis, his maculis quatuor margineque laterali aurantiaceis. Long. 8 millim. ♂ ♀.

Mas. Elytris apice integris.

Femina. Elytris apice profunde excisis.

Hab. PANAMA, Bugaba, San Feliz, Los Remedios, Tolé, Peña Blanca (*Champion*).

Head with a few long erect hairs, some of which surround the eye, closely but very finely punctured, subrostrate, owing to the mouth being very prominent; the labrum elongate, with a membranaceous space separating it from the epistome; palpi black; antennæ black, with four or five joints at the base yellowish, gently serrate from the fourth joint. Thorax oblong, with deflexed sides, not margined, but the lateral edge sharply defined and a little produced, thickly covered with punctures of two sizes, and

clothed with short and not very thick black pile. Elytra deeply punctured, the punctures becoming larger and more confluent towards the apex; there is one sharply defined costule commencing below the humeral callus and continued to the exterior of the third elytral spot, where it ends, but the disc is even, and the suture scarcely raised; the spots are disposed in a row, but not so evenly straight as in *A. lebasii*: the first two pairs are equally distant from the suture, to which they are rather nearer than to the marginal stripe; the third pair are rather more distant from the suture, often transverse, and approaching very near to the stripe; and the subapical pair are generally united with the stripe, but the latter terminates opposite to the third spot. The body beneath is black, rather shining, and clothed with grey pubescence; the fifth segment has the apical margin oblique on each side of the middle, where it is divided for some distance, thus gaping when the sixth is extruded; the latter is ridged and is smooth in both sexes. That it is the male which has the elytra entire is proved by a specimen which has the genitalia extruded.

This species closely resembles a Colombian species labelled *A. lebasii* in my collection, but which, so far as I am aware, is undescribed; it is, however, larger and has less costate elytra.

A. octopustulatus was found by Mr. Champion in vast profusion on flowers in open savannas of the "tierra caliente" east of Los Remedios up to 3000 feet, but he tells me it was very local. It is the habit of the species both of this and other genera of this family to occur profusely in places; they do not probably live very long in the perfected condition, nor do they appear to seek concealment.

MELYRODES (p. 128).

2. **Melyrodes perforata.**

Nigro-picea, vix nitida; capite prothoraceque obsolete subrugose, elytris profundius parce grosse, punctatis, his marginibus leviter reflexis ad apicem subexplanatis, prothorace lateribus acute serratis. Long. $1\frac{1}{2}$ millim.

Hab. PANAMA, San Lorenzo, Tolé (*Champion*).

Pitchy black, the elytra rather lighter, with a brownish tint. The head and thorax are sculptured similarly to those of *M. crenata*, but the sides of the latter are rounded and rather more deeply serrate, the front margin is faintly reflexed, and the hind one very obsoletely margined; the breadth of the thorax is greater than the length, as in *M. crenata*, but the disc is more shining, with larger and remoter punctures. The most striking difference is, however, in the elytra, which are more parallel, and irregularly, not serially, punctured; the suture is distinctly raised throughout, meeting the reflexed margin at the apex; there are no traces of costæ, and the coarse perforate punctures are uniformly distributed. The size is scarcely more than half that of *M. crenata*.

Two specimens.

ANTIXOON (to follow the genus *Melyrodes*, p. 128).

Caput breve, antice parum productum. Antennæ breves, 11-articulatæ, articulo basali subgloboso, secundo valido oblique truncato, tertio ad octavum gradatim brevioribus, hoc tribusque ultimis transversis, clavam laxam formantibus. Palpi apicibus subulatis. Prothorax transversus, convexus, antice recte truncatus, lateribus crenulatis, basi leviter rotundata et subtruncata. Elytra convexiuscula, tenuiter pilosa, grosse punctata. Tarsi quinque-articulati; ungues simplici, haud lobati.

This genus is formed for a small beetle of very puzzling aspect. The general form is suggestive of *Phlœophilus*, which is itself a genus that has long been a difficulty to coleopterists, but is now generally admitted into the Melyridæ, near *Dasytes*. The clavate antennæ, simple claws without lobes, coarsely granulated eyes, and the form of the thorax—short and truncate, and with straight and crenulate sides—are all remarkable in this family. The only species that has yet been found is a small yellow beetle rather like a *Cis*, but more depressed.

1. **Antixoon cribripenne.** (Tab. XIII. fig. 13.)

Ferrugineum; capite et prothorace opacis, minute, creberrime, elytris parce grosse, punctatis. Long. vix 2 millim.

Hab. Panama, San Lorenzo, Peña Blanca 3000 to 4000 feet (*Champion*).

Entirely and uniformly ferruginous red; the head half as wide as the thorax, with small rather prominent eyes; the front rather produced, and apparently formed by a rather long epistome, with distinct labrum; mandibles distinct but not large, only tipped with pitchy; antennæ not longer than the thorax alone, with the three apical joints forming an abrupt club; thorax twice as wide as long, distinctly but very finely punctured, the sides narrowing in front, crenulate, the hind angles almost right angles, but gently rounded; elytra a little broader than the thorax, coarsely and here and there confluently punctate, without any trace of lines or striæ.

Five specimens, captured on the flowers of low bushes in open savannas.

TILLUS (p. 129).

2. **Tillus collaris.** (Tab. XIII. fig. 7.)

Tillus collaris (Dej.), Spinola, Mon. Cler. i. p. 98, t. 2. f. 6[1].

Hab. North America[1].—Guatemala, Capetillo (*Champion*).

Two specimens captured by Mr. Champion are, I believe, referable to this species, agreeing very well, as the larger one does, with Spinola's figure. There is, however, this important difference, that, whereas both in the figure and in his description the number of serrate joints in the antennæ are given as seven, including the end-joint, they are undoubtedly eight in our insect, there being but two short joints between the basal one and the first triangular one. The elytra are also rather more enlarged behind than his figure would lead one to expect. The smaller specimen has the thorax nearly black, a very slight red stain being alone visible. The species has very little of the general

appearance of a *Tillus*, but the structure is not very different from that of the European *T. elongatus*, and the claws are those of the genus. The size of our specimens is three and a half to four millimetres. The colour is entirely black, excepting a red patch covering nearly the whole of the upper surface of the thorax in the larger specimen. The smaller one is not so deeply coloured, being perhaps not quite mature, its legs accordingly are pitchy.

The insect, as is the case with *T. elongatus*, at least in England, is probably not often met with.

CYMATODERA (p. 130).

Cymatodera parallela (p. 132).

To the localities given, add:—PANAMA, Bugaba, Volcan de Chiriqui 4000 to 6000 feet, Tolé (*Champion*).

The Bugaba specimens are rather less parallel than typical ones, and the subapical patch is developed into a broad somewhat arcuate fascia.

Several specimens occurred.

8 (A). **Cymatodera sericans.**

Elongata, postice latiuscula, brunnea, obsolete seriatim punctata, subtus picea, subtilissime breviter sericeo-pubescens; antennis pedibusque ferrugineis, interstitiis crebre, subtiliter irregulariter, punctatis. Long. 15 millim. ♂.

Hab. PANAMA, Volcan de Chiriqui 4000 to 6000 feet (*Champion*).

Head and thorax very finely and very closely punctate, the ocular canthus raised into a ridge which is prolonged over the insertion of the antennæ to the base of the mandibles; disc of the thorax finely wrinkled, but the wrinkles not so conspicuous as the punctures. Elytra gradually widening from the base to one fourth before the apex, which is quite simple, neither cut out nor sinuate; the eight series of punctures are not deep nor very even, and towards the apex become longitudinally confluent and evanescent. The breast and abdomen are piceous; the latter with indistinct rufous spots on the sides of the four basal segments, which are clothed with shining silky hair, as is also the fifth segment, which is, in the male, rather broadly and angularly emarginate; a small sixth ventral segment is present, also cut out at its apex, but not deeply. The antennæ have the apical joint scarcely longer than the tenth, acuminate.

Difficult as the determination of the *Cymatoderæ* is, there is no species of our fauna yet described to which this could with propriety be assigned. It most nearly resembles *C. lunulata*, but the form of the body, its nearly unicolorous tint, rufous legs, &c. appear to me to indicate a distinct species, even if its larger size were not taken into account.

One example.

8 (B). **Cymatodera saturata.** (Tab. XIII. fig. 8.)

Elongata, saturate brunnea; elytris parum depressis, rufo-brunneis, fasciis duabus brunneis, grosse seriatim punctulatis, apicibus lævibus; antennis longis, articulis tertio ad sextum fusiformibus, tribus subapicalibus his brevioribus, interne parum angulatis, apicali ovali duobus præcedentibus subæquali. Long. 10–11 millim.

Hab. PANAMA, Volcan de Chiriqui 4000 to 6000 feet (*Champion*).

Head and thorax pitchy-brown, obsoletely punctured; the thorax rather long, the sides sinuate and compressed, but not much enlarged between the constricted parts. Elytra rather wider and much more coarsely punctured than in *C. lunulata*; the large punctures of the three inner series become irregular and terminate at from one half to two thirds of their length, those of the succeeding three are continued further, the external ones shorter, but varying; their whole surface is clothed with a short, thick, not very distinct golden pile; the brown fasciæ are broad and rather indeterminate, and, in one of the two specimens, are very little visible.

This is a species allied to *C. lunulata* and to *C. angulifera*. From the former the longer antennæ, with much longer intermediate joints, from the latter the deeper colour, broader fasciæ, and the absence of the dark base and subapical fasciæ to the elytra, will serve to distinguish it.

Two specimens.

Cymatodera geniculata (p. 133).

To the localities given, add:—PANAMA, Volcan de Chiriqui 8000 feet, Peña Blanca (*Champion*).

At this high altitude on the Volcan de Chiriqui Mr. Champion captured two specimens of a *Cymatodera* which agree more nearly with *C. geniculata* than any other species, but differ from the two typical examples of that species in not having the series of punctures produced to near the apex of the elytra; they also differ between themselves, one having a dark patch on the elytra behind the middle, the other having the elytra pale brownish yellow, with the patch almost absent. The head and legs are dark pitchy-brown, as in *C. geniculata*, and the thorax is also dark, but pitchy in places. Another specimen, from Peña Blanca, has the base of the elytra more clouded with pitchy than either of these specimens, and has rufous legs.

In the absence of specimens of both sexes from several localities, it is impossible to say whether these represent one or more species.

Cymatodera bipunctata (p. 135).

Var.? Elytris puncto humerali, fasciaque tenui leviter arcuata pone medium, sutura et limbo marginali pone fasciam tenuissime, nigris.

Hab. COSTA RICA (*Van Patten*).

A single specimen, varying from the type of *C. bipunctata* as above, but agreeing with

it in size, colour, and general details, will not, I think, prove to be distinct. The sex is uncertain; the fifth and sixth segments are quite simple, but the latter projects beyond the apex of the elytra.

PRIOCERA (p. 139).

Priocera trinotata (p. 139).

To the localities given, add:—PANAMA, Volcan de Chiriqui (*Champion*).

Priocera pustulata (p. 139).

To the localities given, add:—PANAMA, Volcan de Chiriqui (*Champion*).

Priocera stictica (p. 140).

To the Panama localities given, add:—Caldera in Chiriqui, Bugaba, David, San Feliz, Tolé (*Champion*).

Priocera clavipes (p. 140). (Tab. XIII. fig. 9.)

We now give a figure of a specimen of this species from Volcan de Chiriqui.

COLYPHUS (p. 141).

Colyphus telephoroides (p. 142).

To the localities given, add:—MEXICO, Cordova (*Sallé*), Juquila (*Boucard, coll. Sallé*).

6 (A). **Colyphus bilineatus.** (Tab. XIII. fig. 10.)

Nigro-fuscus; ore, epistomate, prothoracis angulis anticis, interdum lateribus, elytrorum vitta tenui ad apicem plerumque conjuncta, margine laterali pedibusque, flavis; tibiis tarsisque nigricantibus; abdomine flavescente, apice nigro. Long. 6–7 millim.

Hab. GUATEMALA, Zapote (*Champion*); PANAMA, Volcan de Chiriqui 2000 to 6000 feet (*Champion*).

Head finely but distinctly punctured, with a double impression between the eyes, behind which it is black; the mouth is yellow, with the exception that the tips of the maxillary palpi, the terminal joint of the labial palpi, and the inner edge of the mandibles, are black. Antennæ wholly black; the joints from the fourth gently serrate and finely pubescent, the last joint oval, a little acuminate and compressed, the terminal joints not wider than those preceding them. Thorax very little narrower than the elytra, finely punctured, the disc broadly black. Elytra very parallel and flat above, as far as the narrow straight vitta, which, starting from the shoulder, is continued to the apex, where it unites with the narrow yellow margin in the pale apex; sometimes, however, it terminates before the apex, and sometimes the margin is not yellow. The breast is

black; the abdomen yellow, a little infuscate in the middle, and the apical ventral segment usually black.

The species of *Colyphus* are very closely allied and very difficult to separate. I had formerly united the few specimens of this from Zapote with *C. distinctus*, and it is, no doubt, extremely difficult to draw a line here between species and local varieties. The elytra, however, in *C. bilineatus* are flatter above; the stripes are narrower and rather further apart, so that the black sutural band appears always wider, and they curve inwards at the apex when they are united; and the whole insect is rather bulkier. I have seen about a dozen examples which I refer to this species.

6 (B). **Colyphus nigriventris.**

Nigro-fuscus, nitidus; elytris opacis, plerumque tenuiter flavo marginatis; ore, prothoracis lateribus pedibusque flavis; geniculis, tibiis tarsisque nigris. Long. 6–7 millim.

Hab. GUATEMALA, Zapote, San Gerónimo, Teleman in Vera Paz (*Champion*); PANAMA, Caldera in Chiriqui, Bugaba (*Champion*).

This species is so closely allied to *C. bilineatus* that I feel much hesitation in giving it a separate name; the abdomen is always black and shining, in combination with elytra without any trace of a vitta, and often without the margin even being yellow. From *C. limbatus*, or, more properly speaking, from those specimens referred in the present volume, with some doubt, to that type, the close punctuation of the head and thorax, the rather shorter body, and the pale femora clearly distinguish it. *C. lateralis* has no yellow limb to the elytra.

Colyphus limbatus (p. 144).

To the localities given, add:—GUATEMALA, Purula (*Champion*). One specimen agreeing very closely with the type.

10 (A). **Colyphus relucens.** (Tab. XII. fig. 22.)

Rufus, supra sanguineus, subtus ferrugineus, nitidus; antennis pedibusque nigris; elytris basi nigro-cæruleis, sublævibus, obsoletius subseriatim punctatis. Long. 7 millim.

Var. Pedibus rufis, antennis piceis basi rufis.

Hab. PANAMA, Volcan de Chiriqui 4000 to 6000 feet (*Champion*).

Head and thorax entirely brick-red, without spots; very smooth, a very few scattered small punctures on the front portion of the latter being all that are to be observed; the head in two examples has a double impression, in the others it is smooth. Antennæ very slightly serrate, and with the terminal joints scarcely wider than the rest, the apical one usually pitchy red, and the basal one red; black, however, in one specimen. Elytra smoother than usual; entirely red, excepting the base, which is blue, leaving, however, the scutellum and the suture narrowly red. Allied to the blue variety of *C. signaticollis* figured in the earlier part of this volume.

Five specimens.

16. **Colyphus gracilis.** (Tab. XIII. fig. 19.)

Plumbeo-niger, nitidus, parallelus; ore epistomateque flavis, pedibus rufis, antennis tarsisque fuscis, illis subclavatis; prothorace oblongo, lateribus parum ampliatis, disco leviter rugoso; elytris tenuiter flavo limbatis, subrugose punctato-striatis. Long. $5\frac{1}{2}$ millim.

Var. Pedibus fuscis, basi, geniculis tarsisque subtus testaceis.

Hab. PANAMA, Volcan de Chiriqui 8000 feet (*Champion*).

The essential characters by which this species may be known from its allies are its narrow form and almost clubbed antennæ; owing to the latter, it might almost as well be placed in *Pœcilochroa*. The head is impressed between the eyes with a large fossa. The antennæ are longer than the head and thorax together; their last three joints form a sort of lax club, but the last joint but one is distinctly wider than the ninth. The head and thorax are only obsoletely punctured, but the latter is transversely wrinkled, its anterior constriction is very slightly marked, and the sides are scarcely wider than the front. The elytra have the punctuation very confluent, with the interstices irregular; they do not appear so "honey-combed" as in such species as *C. nigriventris*; they are narrowly margined with yellow at the sides and apex; the thorax is, however, entirely leaden-black. Two specimens are all that have come under my notice; they differ only in the colour of the legs; the abdomen is black in both examples.

PŒCILOCHROA (p. 145).

2. **Pœcilochroa varia.**

Nigro-picea, nitida, crebre subrugose punctata; ore, antennis, palpis pedibusque luteis; elytris indistincte rubro variis. Long. 8 millim.

Hab. MEXICO, Juquila (*Boucard, coll. Sallé*).

Head scarcely wider than the thorax; the labrum and the epistoma pilose, yellow; distinctly but very confluently punctured above and between the eyes. Thorax rather narrow and little widened, pilose, subrugosely punctate, the front margin piceous. Antennæ not longer than the head and thorax together, distinctly clubbed; clear yellow, as well as the palpi, which are formed as in *Colyphus*. Elytra clothed with depressed but irregular pilose hairs; punctuation close and subrugose, continued to the apex; pitchy black, with a long basal spot, an indistinct fascia, and the subapical region very indeterminately, rufous. Legs entirely yellow.

Even if this species should prove to vary in colour, the clubbed antennæ, subrugose punctuation, and little dilated thorax should cause it to be recognized.

One specimen.

3. **Pœcilochroa plumbea.** (Tab. XIII. fig. 11.)

Plumbeo-niger; capite prothoraceque rufis, illo basi, antennis, palporum et mandibulorum apicibus, tibiis tarsisque, nigris; femoribus rufis; abdomine æneo-micante. Long. 8 millim.

Hab. MEXICO, Juquila (*Boucard, coll. Sallé*).

The head in this species is narrower than the thorax; red, but pitchy or leaden as far as it is inserted in the thorax; very finely and indistinctly punctured. Thorax entirely orange-red, scarcely visibly punctured, the sides very little widened. Elytra leaden grey, with a fine silky pubescence, which is pruinose (like that in *Colyphus limbatus*), the alternate interstices finely raised, the punctuation very fine, close, and confluent. Legs black, femora orange-red. Abdomen distinctly brassy; metasternum bluish.

A very distinct species, easily recognized by the short clubbed antennæ and details mentioned.

Two specimens only *.

4. Pœcilochroa frontalis.

Aterrima, nitida; capite antice cum ore flavo, prothoracis lateribus aurantiaceis; elytris crebre fortiter punctatis. Long. $5\frac{1}{2}$ millim.

Hab. GUATEMALA, near the city 5000 feet (*Salvin*).

Entirely black, with the exception of the front of the head and the sides of the thorax; antennæ scarcely at all clubbed, as they are in *P. thoracica* (*Clerus thoracicus*, Oliv.); the yellow part of the front extending back beyond their insertion nearly to the base of the eyes; crown and disc of the thorax glabrous; the latter is shorter than in *P. thoracica* (which this species much resembles), and the anterior constriction is deeper, with the sides more bulged below it; the black centre of the disc, moreover, is continued quite to the front edge, whereas in *P. thoracica* it is only united to the front by a narrow strip. Elytra more deeply punctured than in *P. thoracica*, and faintly substriate.

One specimen.

P. thoracica, Oliv., which this species so much resembles, is found in various parts of the United States and in Canada.

THANASIMUS (p. 147).

4. Thanasimus ——?

Hab. MEXICO, Cerro de Plumas (*Höge*), Totosinapan (*Sallé*).

There are two specimens of a *Thanasimus* which are not in a condition to render it desirable they should be described as new; they are allied to *Clerus nigripes* (which would itself be better transferred to this genus), but differ, however, from any of the varieties of that species known to me, *inter alia*, by having a black abdomen.

CLERUS (p. 148).

Clerus sphegeus (p. 150).

To the Mexican localities given, add :—Pinos Altos in Chihuahua (*Buchan-Hepburn*).

One example.

* The antennæ are represented too short in the figure.

Clerus nodulifer (p. 150).

Taken abundantly by Mr. Champion at Bugaba and up to 4000 feet elevation on the Volcan de Chiriqui, in rolled-up withered leaves and on boughs of fallen trees in forest-clearings.

11 (A). **Clerus puellus.**

Saturate ferrugineus, parum nitidus, creberrime punctatus; capite abdomineque nigris; elytris fasciis duabus albis, una mediana curvata, altera subapicali obliqua, inter fascias et ad apicem nigris, cinereo pubescentibus. Long. 5–6 millim.

Hab. GUATEMALA, San Gerónimo, San Joaquin, and Tocoy in Vera Paz (*Champion*).

Extremely like *C. quadrinodosus*, but to be separated from that species by having scarcely any vestige of a basal tubercle, the basal striga only just indicated by a minute smooth ivory-white spot, and by the coarser substriate sculpture of the elytra. This is especially the case in the black part between the fasciæ, which in *C. quadrinodosus* is almost smooth. It is also very like a rufous variety of *C. cautus*, but the latter species is very smooth and shining; the body, excepting the abdomen, is quite red in *C. puellus*.

Clerus venator (p. 159).

To the Mexican locality given, add:—Ventanas (*Forrer*).

A specimen which has lost its head and has a pale subapical fascia to the elytra, thus very nearly resembling *C. æsopius*, is doubtfully referable to this species.

Clerus insidiosus (p. 160).

To the Panama localities given, add:—San Feliz, Tolé (*Champion*).

39 (A). **Clerus plagiatus.** (Tab. XII. fig. 21.)

Nigro-cæruleus, fere impunctatus, nitidus; antennis flavis, articulis tribus basalibus piceis; elytris luteis, macula communi scutellari, apice plagaque in singulis antice attenuata postice ampliata, nigro-piceis. Long. 8 millim.

Hab. PANAMA, Bugaba (*Champion*).

This species is not like any other known to me, and is, in addition to the peculiar pattern, remarkable as having the elytra nearly impunctate and free from hairs. The head and thorax are stout and broad, dark steel-blue, the legs and body of the same tint; the palpi are black, but the antennæ are bright yellow, excepting the three basal joints. The elytra are flat on their disc, and rather broad; the scutellum, a patch running out to a point on the suture (where it becomes pitchy brown), and the apex, blackish; there is also a broad stripe near the apex (where it just touches the margin), but attenuated to the humerus, where it runs out.

One specimen.

Clerus atriceps (p. 161).

The specimen figured (Tab. VIII. fig. 21) is from Capetillo; others from the State of Panama, recorded as a variety (*antea*, p. 161), I now separate, no typical examples of *C. atriceps* having been found with them.

41 (A). Clerus villicus.

Clerus atriceps, var., antea, p. 161.

Pallide ochraceus; capite elytrorumque maculis quatuor magnis nigris; elytris perobsolete punctatis. Long. 8 millim.

Hab. Panama, Bugaba, Volcan de Chiriqui 2000 to 4000 feet (*Champion*).

This species is a near ally of *C. atriceps*, and differs from it in being of a paler yellow colour, with the elytral black fasciæ much reduced in breadth and interrupted at the suture, and in fresh examples edged with pale yellow, almost white. The elytra are also much less punctured. The examples sent by Mr. Champion are all very uniform in size and colour, and have the head black.

Clerus nigripes (p. 164).

To the synonymy given, add :—

Clerus (*Thanasimus*) *repandus*, Horn, Trans. Amer. Ent. Soc. iii. p. 342[1].

Hab. North America, United States, California[1].—Mexico, Sonora[1].

I cannot consider this as more than another variety of *C. nigripes*, Say. Dr. Horn says it is closely allied to *C. trifasciatus*, Say, which species White in the 'Catalogue of Cleridæ of British Museum' considered to be only a variety of *C. nigripes*.

EPIPHLŒUS (p. 166).

1 (A). Epiphlœus princeps. (Tab. XII. fig. 19.)

Rufus, cinereo-sericeus, punctatus; prothorace piceo, lateribus dense sericeo-pubescentibus; elytris postice sericeo micantibus, singulis fascia lata ad suturam interrupta, maculaque magna subapicali triangulari, suturam non attingente, maculam parvam sericeam includente, nigris; pedibus rufis, femoribus posticis, tibiis externe, infuscatis. Long. 10–11 millim.

Hab. Panama, Bugaba 1000 feet (*Champion*).

Head dark chestnut-red, thickly and almost rugosely punctured; antennæ with the long, curved broad joint yellow, the intermediate joints black, and the club fuscous; tips of the mandibles black. Thorax thickly but finely punctured, more distinctly so at the front, which is red, the rest of its disc being black; there is a delicate line of ashy hairs in the centre, and the sides are densely clothed with silky and shining ashy hairs, enclosing a denuded spot; these hairs lie pointing forwards, but in some lights appear to radiate from the black spot they enclose. Elytra deeply impressed with series of coarse punctures in the basal half; the first black patch or fascia is placed before

the middle, slightly arcuate, reaching the margin, but never touching the suture; the second is a large angular spot with its apex near the suture, and variously clothed with the shining silky hairs, but always with a bright spot so covered on the margin. The abdomen is pale, the breast pitchy-red. This is the largest species of *Epiphlœus* yet described. Mr. Champion captured it in abundance running actively on the bark of an immense fallen tree in a clearing of the virgin forest of the low country, and in company with very many other interesting Coleoptera; he also observed that it flew in the hottest sun very actively. Mr. H. W. Bates observed species of this genus in the same way on the Amazons, at Ega, running on the bark of felled trees in a curious sidelong way, with small Coleoptera in their mouths (Trans. Ent. Soc. 1877, p. 246; sub *Epiphlœus chevrolati*).

Mr. Champion sent home a large series of this species in beautiful condition.

Epiphlœus marginipes (p. 166).

To the Panama localities given, add:—San Lorenzo, Tolé (*Champion*).

I do not think we have sufficient evidence for dividing this species at present; but the examples from the State of Panama certainly at first sight appear very different from those from Mexico and other localities in Central and South America with the first club-joint of the antennæ pale. The species also varies extremely in size: some specimens from San Lorenzo being barely four, while others from Tolé are six and a half, millimetres long. Neither does the punctuation afford a constant diagnostic. The type of *E. terzonatus* has the club fuscous, and on closely comparing and re-examining it with specimens from Tolé the first club-joint of the antennæ appears longer, being as long as the funiculus. The problem can only be solved by observation of the living insects. Mr. Champion observed them to frequent powdery fungoid growth on the bark of fallen forest trees in the "tierra caliente."

PLOCAMOCERA (p. 167).

Plocamocera sericella (p. 168).

To the localities given, add:—Panama, Bugaba (*Champion*).

Mr. Champion met with this species in considerable numbers, running on bark of fallen timber in clearings of the forests of the low country, in the hot sun.

HYDNOCERA (p. 168).

1 (a). **Hydnocera suturalis?**

Hydnocera suturalis, Klug, Abhandl. Ak. Berl. 1841, p. 313?
Hydnocera marginata, var., Gorh. antea, p. 168 (pars).

Hab. Panama, Volcan de Chiriqui (*Champion*).

What the *H. suturalis* of Klug really is I do not know; the locality "America borealis" is very vague. Whether the species Spinola figures under this name [Atlas, t. 39. f. 6], but which he described as *H. limbata*, is the same species is to me extremely doubtful; but however that may be, the insect found by Mr. Champion on the Volcan de Chiriqui at from 4000 to 6000 feet elevation is certainly distinct from *H. marginata*. The head is narrower between the eyes, and entirely black, excepting the mouth. The thorax is narrower, and is black with the front margin and three lines yellow. The elytra are narrow, serrate at their apex, with two small distinct teeth, the suture black, more widely so at the base, their margin blackish, but not so at the base; the shoulder is not tipped with black; and they are more thickly and more coarsely punctate. The legs are yellow, the femora only just touched with fuscous.

About nine specimens from the Volcan de Chiriqui agree very closely with the one previously recorded from Boquete.

14 (A). **Hydnocera furcata.** (Tab. XIII. fig. 14.)

Fusco-cinerea, sat dense pubescens, æneo-micans, creberrime punctata; elytris macula magna circa scutellum alteraque minore mediana albidis, dense cinereo-tomentosis; antennis, geniculis, tibiis tarsisque, obscure testaceis. Long. $4\frac{1}{2}$–6 millim.

Mas? Abdominis apice mucrone duplici exstante.

Hab. Mexico, Northern Sonora (*Morrison*).

Of the form and not unlike *H. obscura*, but with the puncturing of the elytra very much more close and intricate, resembling in this respect *H. scabra* and its allies; it is also nearly allied to *H. rudis*, but easily distinguished therefrom by the white markings; these in this species nearly unite, and indeed appear united in fresh specimens owing to the extension of the ashy, shining hairs. The curious processes from the subapical segment of the abdomen are, I think, peculiar to this species; at all events nothing of the kind has been recorded in any other species.

Ten or twelve examples sent us by the late Mr. Morrison.

14 (B). **Hydnocera rudis.**

Fusca, dense pubescens, æneo-micans; antennis (apice excepto) testaceis, genibus tarsisque anticis rufis; elytris fasciculis duobus scutelloque albido-sericantibus. Long. $4\frac{1}{2}$–6 millim.

Hab. Mexico, Northern Sonora (*Morrison*).

Head wide; thorax narrower, quadrate, a little narrowed behind, without the sides being much swollen; both densely and granulosely punctate, grey, with a bright metallic lustre, clothed with black upright pile, and ashy depressed hairs, not regularly but "combed" in all directions; elytra similarly clothed, but the pile disappears towards their apex, the latter not crenulate. Underside brassy; legs with long hairs, dark ashy-grey, except the front pair, of which the tibiæ and tarsi are rufous, but dark in

part, as are also the claws, the undersides of the tarsi, and the middle of the tibiæ. This species is near *H. scabra*, Lec.

Two specimens.

23 (A). **Hydnocera cylindricollis.** (Tab. XIII. fig. 16.)

Hydnocera bituberculata, ante, p. 176, pars. (Nec Chevr.)

Nigra, subcærulescens, pilosa, fere glabra; prothorace longiore, lateribus sinuatis; elytris parce, obsolete punctatis, humeris alte carinatis, carina acuta, pone medium producta, scutello pube argentea dense vestito; antennis testaceis, ad apicem fuscis. Long. $4\frac{3}{4}$–5 millim.

Hab. NICARAGUA, Chontales (*Janson*); PANAMA, Bugaba, David, Volcan de Chiriqui below 4000 feet (*Champion*).

This is the insect referred to under *H. bituberculata* as having the carina more produced, &c., and the localities repeated here are therefore to be removed from that species. The remark, "The shining pubescence is almost confined to a spot," applies solely to *H. bituberculata*. In *H. cylindricollis* the thorax is longer and more shining, and not so much dilated laterally below the anterior constriction; the elytra are not so coarsely punctured near the base, and the carina is sharply defined, whereas in *H. bituberculata* it is interfered with by the punctuation, and is frequently quite indistinct. In the present species the scutellum is clothed with bright silvery scales or hairs, but only distinct in fine specimens; the bright spot on the elytra is absent, but the apex is pruinose and with shining silvery hairs.

About a dozen examples.

23 (B). **Hydnocera vitrina.** (Tab. XIII. fig. 15.)

Nigro-cærulea, grosse punctata, nitida; humeris longe carinatis; elytris macula laterali parum distincta, apiceque albidis, margine laterali pone medium reflexo et crenulato. Long. $5\frac{1}{2}$ millim.

Hab. MEXICO, Tuxtla (*Sallé*); PANAMA, Bugaba, Volcan de Chiriqui (*Champion*).

H. vitrina is so much like *H. bituberculata* and *H. cylindricollis* that it will suffice to point out in what respects it differs from those species. The general form is more nearly that of *H. cryptocerina*, but the upper surface is more shining and less roughly punctured than in that species. There are, however, numerous scattered large punctures all over the disc of the elytra, but becoming rarer near the apex. The thorax is not so long, and more widened at the sides than in *H. cylindricollis*, and is uneven and punctured, and has a central smooth space faintly raised. The elytra have numerous large deep punctures, which sometimes (in the specimens from the Volcan de Chiriqui alt. 4000 to 6000 feet) interfere with the carina, but usually leave it intact. In the typical example, viz. that from Bugaba, the apex of the elytra, their fold below the middle, and a spot on the side are yellowish, as well as the legs on their inner sides; but in the other specimens the legs are black, pale only at the extreme base, and in one the front legs are partly pale. These I think are only varieties. The example from

Tuxtla is in very bad immature condition. The Bugaba specimen is therefore the only one which can be considered typical, and is the one figured.

The following species or doubtful varieties of *Hydnocera* it is well to notice; they are represented by single examples, and considering the caution that should be observed in adding to so difficult a genus, I do not think any useful purpose can be gained by naming them, there being insufficient evidence that they are distinct.

2 (A). **Hydnocera** ——?

Hab. MEXICO, Oaxaca (*Sallé*).

One of the group with the elytra shorter than the body and serrate; yellow, with black head, apex, and spot of elytra. The specimen has been pinned and is in poor condition.

2 (B). **Hydnocera** ——?

Hab. GUATEMALA, Dueñas (*Champion*).

Yellow, the head black, the hind thighs black at their apices, the elytra spotless but infuscate along the apical half of the margin.

2 (C). **Hydnocera** ——?

Hab. MEXICO, Northern Sonora (*Morrison*).

Black; antennæ, mouth, and front legs red, excepting at their base.

3 (A). **Hydnocera** ——?

Hab. PANAMA, Bugaba (*Champion*).

10 (A). **Hydnocera** ——?

Hab. MEXICO, Yolos (*Sallé*).

Blackish, but with a metallic bluish lustre; the underside very shining, as also a space in the centre of the thorax; a faint reddish mark at the base of the elytra; antennæ dark, except their basal joint.

12 (A). **Hydnocera** ——?

Hab. MEXICO, Juquila (*Boucard, coll. Sallé*).

Black; head and thorax yellow, the latter spotted at the base; legs yellow, the tibiæ black on their outside edge.

14 (c). **Hydnocera** ——?

Hab. Mexico, Northern Sonora (*Morrison*).

A species allied to *H. furcata*; there is no scutellar patch, but a single white fascia-like spot; the punctuation more rugose.

ICHNEA (p. 178).

6 (a). **Ichnea vitticollis.** (Tab. XII. fig. 24.)

Ichnea vitticollis, Gorh. Trans. Ent. Soc. 1877, p. 415.

Hab. Panama, Bugaba, San Feliz (*Champion*).

Judging from the figure of *I. suturalis*, Klug, this species must very nearly resemble that insect, but is distinct, the terminal joint only of the antennæ being white. The underside of the prothorax is yellow, the whole of the breast and the abdomen black. The legs are quite yellow, excepting the front tarsi, which are blackish, and the front tibiæ are clouded.

Three examples were obtained, two at San Feliz, and one at Bugaba; the latter is the one figured. These were beaten from withered leaves of fallen forest trees.

APOLOPHA (p. 181).

Apolopha chiriquiana (p. 182).

To the Panama localities given, add:—Tolé (*Champion*).

Several additional specimens from this and the other localities recorded. Mr. Champion found the species frequenting a black powdery fungoid growth on the bark of felled or fallen forest trees, usually in the shade.

ORTHOPLEURA (p. 184).

Orthopleura damicornis (p. 185).

To the localities given, add:—Mexico, Ventanas (*Forrer*).

One example. The elytra are bluer than in the examples in my collection, and the head, legs, and breast are reddish, the punctuation of the elytra being at the same time finer. There are many discrepancies between the insects I refer to this species and the descriptions of Fabricius and Spinola. Neither mention the narrow red fascia on the elytra, which, however, is often very indistinct. Spinola describes the club as being as long as the rest of the antenna; in the example sent me by M. Chevrolat, under the name *Pelonium pennsylvanicum*, the club is more than three times the length of the basal part of the antenna, and this is so also in one of my Mexican specimens. In the other examples the antennæ are unfortunately defective.

CHARIESSA (p. 187).

Chariessa vestita (p. 187).

To the localities given, add:—PANAMA, Tolé (*Champion*).

2. **Chariessa elegans.** (Tab. XII. fig. 23.)

Chariessa elegans, Horn, Trans. Amer. Ent. Soc. iii. p. 87 [1].

Hab. NORTH AMERICA, San Joaquin in California [1], Texas (*Belfrage*).—MEXICO, Northern Sonora (*Morrison*).

Collected by the late Mr. Morrison in the border country, but not ascertained for certain whether in Sonora or within the United States side of the boundary.

PELONIUM (p. 187).

1 (A). **Pelonium luridum.** (Tab. XII. fig. 20.)

Sordide testaceum; antennis tarsisque fuscis, prothorace maculis duabus; elytris plagis indeterminatis saturatioribus; antennis 11-articulatis, clava articulis reliquis subæquali. Long. 10–14 millim.

Hab. PANAMA, Bugaba, San Lorenzo, Tolé (*Champion*).

Head rather sparingly punctured; eyes large, nearly approximate; epistoma widely cut out; mandibles pitchy black; antennæ fuscous, the basal joint yellowish outside, the club covered with soft down, the two first joints with their apices produced and overlapping; tips of the palpi fuscous. Thorax at the base and on the middle distinctly, rather closely, in front closely, granulosely punctured; side tubercles not large. Elytra thickly covered in the basal half with irregular punctures, obsoletely and very finely towards the apex; widened a little behind; very closely and finely pubescent, with longer hairs at the sides and apex. Legs hairy; the front and middle knees faintly infuscate; the tarsi fuscous, except the lamellæ of the basal joints beneath.

Five specimens of this fine and apparently rare *Pelonium* were obtained by beating withered leaves of fallen forest trees. Mr. Champion observed that it was much paler when alive, and mimicked some species of Lampyridæ. It is no doubt allied to *P. lampyroides*, Spin.

A specimen from Tolé is figured.

Pelonium amœnum (p. 188).

To the Panama locality given, add:—Tolé (*Champion*).

Two specimens.

NIPTUS (p. 196).

Niptus ventriculus? (p. 196).

To the Mexican locality given, add :—Guanajuato (*Sallé*).

TRIGONOGENIUS (p. 196).

2. **Trigonogenius arcuatus.** (Tab. XIII. fig. 20.)

Fusco-brunneus, pilosus, squamis albis adspersus; antennis pedibusque brunneis; prothoracis disco linea mediana, margine basali, elytrorum fascia basali valde arcuata, scutello maculisque duabus, albo-squamosis; elytris punctato-striatis. Long. $1\frac{1}{2}$ millim.

Hab. PANAMA, Taboga Island (*Champion*).

The antennæ in this species are longer and thinner than in *T. niveus*, and with the joints nearly twice as long as broad, and somewhat serrate; the white markings are not so compact, the scales composing them being more scattered; the elytra are more globular, and the basal fascia of scales forms an irregular semicircle surrounding the shoulder; the body beneath and the legs (especially the tibiæ) are densely clothed with white scales; and it is smaller in size. Two specimens.

LASIODERMA (p. 198).

Lasioderma serricorne (p. 199).

To the Mexican locality given, add :—Presidio (*Forrer*), Jalapa (*Höge*).

ANOBIUM (p. 201).

Anobium sericatum (p. 201). (Tab. XIII. fig. 17.)

We now give a figure of the specimen presumed to belong to this species. It is apparently congeneric with the species here referred to *Mirosternus*.

LIOOLIUS (p. 203).

1 (A). **Lioolius exiguus.**

Oblongo-ovatus, subparallelus, piceus, nitidus, parcius punctatus; capite fere lævi. Long. $2\frac{1}{2}$ millim.

Hab. HONDURAS (*Sallé*).

Rather more parallel than *L. punctatus*, piceous without any blue tinge; the thorax and elytra more distinctly punctured than in any of the other species. Elytra very smooth and shining; a few very obsolete striæ are just visible under a strong lens in their middle, neither reaching the base nor the apex. The thorax and the breast are a little more darkly pitchy than the elytra.

Two specimens.

THAPTOR (p. 205).

1 (A). **Thaptor sharpi.**

Plumbeo-niger, oblongo-ovatus, pube brevissima sericante vestitus ; stria submarginali dimidio apicali distincta, antice abbreviata. Long. 5 millim.

Hab. MEXICO, Jalapa (*Höge*).

Broader than *T. pupatus*, and more convex, especially when viewed sideways. From above, or "on plan," the outline is very evenly oval, the thorax being rather more pointed than the apex of the elytra. The head (when set out) is of course in addition to the oval outline of the thorax and elytra, but is perfectly retracted in repose. The antennæ are brown, and similar to those of *T. pupatus*. There are no striæ or punctures visible; the surface above appears dull, with an exceedingly fine and close pubescence, which is greyer than that of *T. pupatus*.

A single specimen is all I have yet seen; it was detected by Dr. Sharp among the specimens of *Cathorama palmarum* collected at Jalapa by Herr Höge, which, when unset, it almost exactly resembles.

Thaptor oblongus (p. 206).

To the Mexican localities, add:—Jalapa (*Höge*).

Several specimens, varying a good deal in size.

CATHORAMA (p. 207).

Cathorama palmarum (p. 207).

To the Mexican localities given, add:—Jalapa (*Höge*).

1 (A). **Cathorama puncticeps.**

Summa affinitate *Cathoramæ palmarum*, breviter oblonga, convexa, fusca, subnitida; antennis ferrugineis; capite prope oculos distincte crebre punctato ; prothorace valde convexo, transverso, haud plus quam duplo latiore quam longus. Long. $5\frac{1}{2}$ millim.

Hab. MEXICO, Jalapa (*Höge*) ; GUATEMALA, San Gerónimo (*Champion*).

Extremely close to the species I have identified with some doubt as *C. palmarum*, and only to be separated by its slightly bulkier and broader build, by the thorax not being so short, more produced over the head, and more convex, and by the rather strongly punctured space on each side at the base of the head, and behind and inside the eyes. Both this species and *C. palmarum*? have the sculpture of the whole upper surface exceedingly fine, so that (with the exception mentioned in this species) neither punctures nor striæ are visible; even the submarginal striæ, usually present, are here scarcely to be seen; they are only faintly represented by obsolete, shallow impressions. Two specimens.

Cathorama seminulum (p. 207).

To the localities given, add:—PANAMA, Peña Blanca 3000 to 4000 feet (*Champion*).

Found on flowers on open savannas, commonly.

MIROSTERNUS (to follow the genus *Cathorama*, p. 208).

Mirosternus, Sharp, Trans. Ent. Soc. Lond. 1881, p. 526.

A genus founded by Dr. Sharp for several species of "Dorcatomini" inhabiting the Hawaiian Islands. The species he describes being only represented by single, or at the most two or three specimens each, I have not been able to examine a dissection, and the two insects now referred to the genus being similarly represented, their location here must be considered problematical, yet externally there does not seem to be anything to separate them. The antennæ are eleven-jointed, the eyes not cut out, the mesosternum depressed, and the prosternum without processes.

1. **Mirosternus brunneivillis.** (Tab. XIII. fig. 18.)

Oblongus, niger; elytris prothoracisque disco minus dense, lateribus densius, brunneo-pubescentibus; antennis pedibusque rufo-fuscis, his clava rufula. Long. 3 millim.

Hab. PANAMA, Volcan de Chiriqui 4000 to 6000 feet (*Champion*).

Brownish black, a little shining, clothed with a brownish close pubescence, which is disposed rather in lines on the elytra, and becomes denser on the sides of the thorax, especially on the inflexed portion. The thorax narrows considerably in front, its length is rather less than its width at the base. Punctuation is not visible. The antennæ have the three last joints elongate, not angular, but evenly rounded on their inner edge, and nearly equal in length and breadth to each other.

This insect may perhaps be regarded as forming a link between the genus *Thaptor* and the typical "Dorcatomini." There is, however, no room for doubt that large numbers of species exist, and it would be foolish to attempt to systematize or generalize upon the modifications at present known to us. Thus I do not feel sure yet that the mesosternal cavity is always used for the reception of the antennæ; those species I have examined have the antennæ folded under the head, and lying in front of the prosternum.

2. **Mirosternus substriatus.**

Oblongus, latior, nigro-piceus; elytris subplumbeis, striis duabus submarginalibus fortiter impressis, tertia (interiore) obsoleta pone medium desinente, disco lævi, seriebus punctorum circa septem, perobsoletis ægre distinctis. Long. 4 millim.

Hab. PANAMA, Boquete 2500 feet (*Champion*).

This is a difficult species to deal with, its general appearance being that of a *Cathorama*; it is, however, not admissible into that genus, on account of the antennæ being distinctly eleven-jointed. From other species of *Mirosternus* it differs in its more robust build. The whole upper surface is clothed with the same extremely short, fine bloom or pubescence which we observe in some species of *Cathorama*, and in *Thaptor*. The head is wide, rufo-piceous above, rufous beneath; the antennæ are rufous, with the basal and apical joints darker, the club formed much as in *Cathorama*, the intermediate joints very short and transverse, and rather acuminate internally. Two specimens.

PRIOTOMA.

Dorcatoma, ante, p. 208 (pars).

Corpus breve, fere semiglobosum. Caput inflexum, in prothorace modice receptum. Oculi interne leviter excisi. Antennæ decem-articulatæ. Prosternum antice in medio angulariter productum, postice late arcuatim emarginatum, dente medio antico setosello. Mesosternum depressum, medio excavatum. Abdominis segmenta utrinque sinuata. Metasternum intra coxas intermedias rotundato-truncatum et marginatum.

Typus *Dorcatoma quadrimaculata* (ante, p. 209).

This insect was described from a unique example, and of the other species referred in the first part of this volume to *Dorcatoma* so few specimens were in my hands at first, that I was then unwilling to dissect them. A few more having now been found, I have carefully examined by dissection both *P. quadrimaculata* and *P. contracta*, and by inspection without detaching the head or prothorax, *P. brevis* and *P. tenuistriata*, now added. None of these can be properly included in *Dorcatoma* as now restricted by European writers, as they do not possess the remarkable double fork-like process to the prosternum; neither can they be referred to *Cænocara*, which the two latter species especially seem to come nearer, for the eye is not nearly so deeply excised. With *Anitys* (although *P. contracta*, *P. brevis*, and *P. tenuistriata* appear to have the antennæ eight-jointed) they have even less affinity. The genus *Dorcatoma* will in consequence only be retained here for the single remaining species, *D. tomentosa*, which will without doubt be ultimately withdrawn also.

In *P. contracta* the front ridge of the prosternum is nearly straight, without any point or tuft of hairs; and the hinder ridge, if emarginate, is very broadly so, but the structure is practically the same, the anterior legs being rather widely separated; the object of the arrangement being apparently to permit the antennæ in repose to be pushed over the edge of the prosternum into the cavity produced by the depression and hollowing out of the mesosternum. In *P. quadrimaculata* the pubescence is close and fine, in the other small round species mentioned here it is sparse and setose; it is probable that ultimately these as well as the species with eleven-jointed antennæ will be generically separated, but it would be premature to do so at present.

1. **Priotoma quadrimaculata.**

Dorcatoma quadrimaculata, ante, p. 209.

To the localities given, add:—MEXICO, Jalapa (*Höge*); GUATEMALA, San Gerónimo (*Champion*); PANAMA, Bugaba (*Champion*).

2. **Priotoma contracta.**

Dorcatoma contracta, ante, p. 209.

To the localities given, add:—GUATEMALA, Cahabon (*Champion*); PANAMA, Peña Blanca (*Champion*).

3. **Priotoma brevis.**

Breviter orbicularis, subglobosa, nigra, nitidula, parce brevissime pilosa; elytris creberrime confertim punctato-striatis, striis duabus submarginalibus subintegris, tertia antice abbreviata; antennis pedibusque fuscis. Long. 1½ millim.

Hab. PANAMA, Bugaba, David (*Champion*).

About as large as *P. contracta*, and equal to the specimens of middle size of that species, but more convex, and at once to be distinguished by the punctuation of the elytra, which in this species is composed of series of large distinct points with fine striæ between about every third row of punctures; the points, though very thickly distributed, are not confluent, and there is generally room for other punctures of the same size between each; the interstices are smooth, and smaller points are here and there interspersed. The head and thorax are also thickly punctured. The antennæ are apparently eight-jointed; the funiculus is very short, and may perhaps be composed really of four joints, it being to me uncertain whether what appears to be a very short joint immediately before the first club-joint does not in fact form its base or stalk; the club is well developed; the first joint is triangular, almost equilaterally, but its inner angle is rounded off, the second triangular, but not so wide, the last oblong and rather narrow. The antennæ and legs are dark fuscous-red. The whole body is black, but with a very faintly bluish tinge.

Two specimens are all I can assign to this species.

4. **Priotoma tenuistriata.**

Breviter oblonga, valde convexa, nigra, subtus rufa, nitidula, densius setosa; capite et prothorace subtomentosis; elytris striis tenuibus striatis, creberrime confertim punctatis, striis duabus submarginalibus subintegris valde impressis; antennis, pedibus corporeque infra rufis. Long. 2 millim.

Hab. PANAMA, Bugaba, Volcan de Chiriqui 4000 to 6000 feet (*Champion*).

Very distinct from either of the species yet described. The body, though strongly convex, is more oblong; the punctuation is so fine and dense as not to be resolved except under the microscope, the striæ are, however, distinct enough, although fine; the setose pubescence is denser than in the two preceding species. The antennæ are

less developed (possibly the specimens are females); their first club-joint is triangular, the inner angle acute, the second club-joint is nearly of the same form, the third or terminal joint is oval, shorter than in *P. brevis*, and the appendages are red. Two specimens.

LYCTUS (p. 211).

By an oversight the Subfam. "Lyctini" (including two species of *Lyctus*) has been placed after *Polycaon plicatus* on p. 211; it should precede the Subfam. "Bostrychini" on p. 210.

Lyctus prostomoides (p. 212).

To the localities given, add:—MEXICO, Guanajuato (*Sallé*); ?NICARAGUA, Chontales (*Janson*).

One specimen from San Lorenzo in the State of Panama has the head and thorax covered with thick brownish-grey pubescence, and the elytra evenly pubescent.

A single example, in very bad condition, from Chontales is perhaps referable to this species.

APATE (p. 212).

Apate punctipennis (p. 213).

Bostrichus migrator, Sharp, Scient. Trans. Royal Dublin Soc. iii. series 2, p. 160 [1].

To the localities given, add:—MEXICO, Northern Sonora (*Morrison*), Tres Marias Islands (*Forrer*), Esperanza, Jalapa, Almolonga (*Höge*); NICARAGUA, Chontales (*Belt, in coll. Sharp*); PANAMA, Taboga Island (*Champion*).

By the kind permission of Dr. Sharp I have examined specimens of the species from Honolulu [1], described by him under the name of *Bostrichus migrator*, and I agree with him that no difference exists between them and a specimen in his collection from Nicaragua; it appears certain to me also that it is identical with the present species. I have also through Dr. Sharp's kindness examined an authentic specimen of *Amphicerus fortis* from Arizona; this latter, though very closely allied, differs (as I had gathered from the description) from both this, which I still regard as *A. punctipennis*, Lec., and from another species in my own collection, notably by the shorter thorax having the hind angles produced into a sort of tubercle.

Whether *Bostrichus bicornutus*, Latr., is the same species, I have no evidence for determining, the synonymy in the Munich Catalogue only referring to catalogue names with no kind of authenticity or value.

BOSTRYCHUS (p. 213).

Bostrychus verrucosus (p. 214).

To the localities given, add:—MEXICO, Almolonga (*Höge*).

One specimen, apparently identical with this species, but densely clothed with rough hair, in tufts and matted masses, which probably is deciduous in specimens that have been at large for some time.

XYLOPERTHA (p. 215).

Xylopertha sericans (p. 215).

To the Mexican localities given, add:—Northern Sonora (*Morrison*), Pinos Altos in Chihuahua (*Buchan-Hepburn*, ♀), Ventanas 2000 feet (*Forrer*), Almolonga (*Höge*).

Xylopertha scapularis (p. 216).

To the localities given, add:—GUATEMALA, Yzabal; PANAMA, Bugaba, Tolé, Peña Blanca (*Champion*).

Xylopertha sextuberculatum (p. 216).

To the Mexican localities given, add:—Almolonga, Esperanza, Oaxaca (*Höge*).

The specimens referred to this species present a good deal of variation both in colour and in the length of the teeth at the declivity of the elytra; one from Almolonga is black, excepting the callus, which is red; another from the same place is more shining, with finer punctuation, feebly developed teeth, and the apical declivity strongly punctured; while the one from Oaxaca has the teeth commencing as parallel ridges.

DINODERUS (p. 217).

Dinoderus punctatus (p. 217).

To the Mexican locality given, add:—Almolonga (*Höge*), Ventanas 2000 feet (*Forrer*).

Dinoderus substriatus (p. 218).

To the localities given, add:—GUATEMALA, Cerro Zunil (*Champion*). Four specimens.

4. **Dinoderus perfoliatus.** (Tab. XIII. fig. 25.)

Niger; elytris piceis, distincte punctato-striatis; antennis fusco-rufis, clava nigra, articulis octavo et nono intus longe productis. Long. $2\frac{1}{2}$ millim.

Hab. PANAMA, Bugaba (*Champion*).

Allied to *D. substriatus*, but smaller, and proportionally narrower; and to be separated from that species by several important characters: the thorax has not the double oblique fossa at the base; the elytra are quite distinctly punctate in series of which six can be counted on each elytron, but the punctures become confused near the scutellum and at the sides, and there is an obsolete row near the suture in addition. The whole insect is more shining than *D. substriatus*; the thorax has the same concentric rows of muricate tubercles (three or four of these can be counted, behind which the rough points become small and confused) as other species of this genus, and the base is simply punctate with granular interstices. The antennæ differ very strikingly from those of *D. substriatus*, in which they are rufous, and with the two first joints only of the club angularly widened internally till they are a little wider than long; in *D. perfoliatus* these joints are so sharply produced as to be more than twice as wide as long, and the three last joints are black or nearly so.

XYLOGRAPHUS (to precede the genus *Macrocis*, p. 219).

Xylographus, Mellié, Rev. Zool. 1847, p. 109; Mon. 1848, p. 218; Lacord. Gen. Col. iv. p. 549; Jacq. Duval, Gen. Col. Eur. iii. p. 237; Abeille de Perrin, Essai Monographique Cisides Europ. et Circamediterran. p. 17 (1874).

Mellié, adopting a name in Dejean's 'Catalogue' for a Madagascar species, viz. *Xylographus hypocrita*, has placed nine species in this genus, three from Madagascar, one from Europe and Algeria, and five from Peru and Colombia. It differs from *Cis* in its general shape, which is more that of *Tomicus*, also by the extraordinary form of its legs, which have the tibiæ widely lamelliform with denticules on the outer edge.

In the two species which are here assigned to the genus, the legs agree in these particulars, and in addition the femora are wide and compressed, the coxæ are elongate, cylindrical, and widened at their femoral ends. The prothorax is massive, and projects in a singular way over the head. The punctuation of the elytra is coarse and deep and rather sparse.

It is probable that the species now described will, with others from South America, ultimately be separated from those from Madagascar, but as I have not dissected the European one, which is rare in collections, and of which I have only seen two specimens sent me by Herr Reitter, I am not able to point out good characters by which they may be separated. In their general peculiarities these species present remarkable affinities with *X. bostrichoides*, and this is more especially true of *X. suillus*, while *X. porcus* has superficially a stronger resemblance to a *Tomicus*, and is evidently a near ally of the Colombian *X. gibbus*.

1. **Xylographus suillus.** (Tab. XIII. figg. 21, 21 *a*.)

Breviter oblongus, crassus; prothorace antice angustato, caput sicut cucullo tegente; nigro-piceus, nitidus, sat fortiter crebre punctatus; antennis (clava excepta) testaceis. Long. 2 millim.

Hab. GUATEMALA, Teleman (*Champion*).

This species and *X. porcus* are distinguished from any of the Cioidæ known to me by the form of the thorax, which is produced over the head in a hood-like manner, the head being comparatively small; when viewed sideways the front of the thorax leaves an open space betwixt itself and the head. No horns or tubercles are present, and I do not distinguish the sexes. The antennæ are ten-jointed; the funicular joints are very small and short, the three club-joints transverse and blackish. The punctuation of the thorax is fine and close, that of the elytra sparser and stronger. The thorax is much deflexed at the sides, and it is entirely margined with a fine raised line. The legs are pitchy, a little lighter than the body. Many specimens were obtained in hard boleti growths on the trunks of the "Manaca" palm (*Attalea cohune*), in the hottest parts of the Polochic valley.

2. **Xylographus porcus.**

Breviter oblongus, crassus; prothorace antice modice angustato, nigro-piceus vel piceus, elytris brunneis, pilo tenui parcius vestitus; prothorace crebre, elytris parcius fortiter, punctatis, his ad apicem retusis. Long. 1–1½ millim.

Hab. GUATEMALA, Teleman, Zapote, Pantaleon (*Champion*).

A smaller species, and much more coarsely and sparingly punctured than *X. suillus*; the thorax is similarly formed, projecting very much over the head, the margin is entirely bordered by a fine line, except in the immediate front, where it is faintly emarginate, and this part is usually reddish. The elytra are not longer than the thorax, being scarcely longer than wide, and they are almost setose, the pile being very short and stiff. The antennæ are proportioned as in *X. suillus*, and are similarly coloured. The smaller specimens are those from Pantaleon.

Many examples. This species very much resembles a *Tomicus*, owing to the short retuse body and upright hairs.

3. **Xylographus latirostris.** (Tab. XIII. figg. 23, 23 *a*, ♂; 24, 24 *a*, ♀.)

Oblongus, robustus, niger, nitidus; prothorace minute, distincte, elytris minus distincte, subtilissime punctatis; pedibus rufis. Long. 2–2¼ millim. ♂ ♀.

Mas. Capite antice laminato-elevato, utrinque ante oculos elevatiore; prothoracis margine antico in laminam bene distinctam, recurvatam, margine summo emarginato, elevato.

Femina. Capite antice laminato-elevato, prothorace mutico.

Hab. GUATEMALA, Zapote (*Champion*).

This is a species resembling *X. bostrichoides*, but remarkable for the armature of the head and thorax, the front margins of which in the male are each elevated into a recurved and concave lamina. The antennæ are distinctly ten-jointed, the third joint elongate, the intermediate joints short; the base yellow, the club black. The punctuation of the thorax is so fine that under a "Coddington" it is only just visible, but under the microscope it breaks up into distinct scattered points, between each of which there is room for several others of the same size; that of the elytra is thicker and more irregular, there being larger and smaller points interspersed. The elytra are only a little longer than the thorax, and are very retuse at their apex.

It is, as usual in this family, the sexual characters, and especially those of the male, that afford the best specific diagnostics. In the male the thorax is suddenly depressed in front, and then the margin rises as a broad recurved plate, of which the top is truncate, with its corners produced a little: it thus forms a sort of cup. The head has its front elevated, especially on each side, the "cup" so formed is very shining inside, and seems to have a small tubercle in the middle; but there being only one male specimen, I cannot examine the head sufficiently to see the whole of the structure.

MALACOCIS (to follow the genus *Xylographus*).

Corpus breve oblongo-subquadratum, dense pubescens. Caput parvum, antennæ novem-articulatæ. Prothorax corporis latitudine, convexus, haud cucullatus; prosternum breve, coxas anticas haud superans.

1. **Malacocis championi.**

Brevis, nigro-brunneus, rufo-villosus, breviter pilosus; antennis pedibusque fuscis, illis basi testaceis. Long. $1\frac{1}{4}$ millim.

Hab. GUATEMALA, near the city (*Champion*).

A little, broad, convex species, densely clothed with coppery-red upright velvety pile. The punctuation of the elytra appears very close and subrugose, not in series, nor is there any appearance of striæ; the underside is of the same fusco-piceous colour as the rest of the body, but the mentum is yellow, and the legs are lighter in colour than the body; the thighs are moderately compressed, not much widened; the tibiæ simple, not denticulate externally, but not well observed in the specimens before me; the tarsi short. The antennæ are nine-jointed; the third joint is long and equal in length to the three following ones, which compose the funiculus; the three club-joints short and laxly articulated. The head is small, rufous above; the eyes small and not very prominent.

Two specimens of this curious little species are all Mr. Champion appears to have obtained.

CIS (p. 220).

4 (A). **Cis tetracentrum.** (Tab. XIII. figg. 22, 22 *a*, ♂.)

Oblongus, fuscus, dense sed breviter pubescens, confertim punctatus, parum nitidus; antennis testaceis, clava saturatiore; pedibus rufis. Long. 3–3¼ millim. ♂ ♀.

Mas. Capite, clypeo angulariter bituberculato, elevato; prothorace antice bidentato.

Hab. NORTH AMERICA, Arizona (*Morrison*).—MEXICO, Northern Sonora (*Morrison*).

Rather larger and longer than *C. bisbidens*, to which it is rather closely allied. The two angular projections of the clypeus are further apart than in that species; they are formed from a ridge which takes its origin in the upper part of the canthus of the eye. The front edge of the thorax in the male is produced into two prominent and sharp points, but these are not nearly so long as in *C. bisbidens*, and whereas in that species they point slightly downwards over the head, in this species they curve a little upwards, though in both they are nearly straight.

The punctuation is very fine and close, and hidden by the short golden-brown and somewhat pruinose pubescence. Several specimens of this insect were collected by Morrison, and distributed indifferently as from "Northern Sonora," "California," &c., but the precise locality of their origin is uncertain.

10. **Cis bituberculatus.**

Oblongus, brunneus vel rufo-brunneus, vix punctatus, parum nitidus, brevissime setulosus; antennis testaceis, clava fusca. Long. 2½ millim. ♂ ♀.

Mas. Clypeo bidentato elevatulo, prothorace antice bidentato.

Hab. MEXICO, Oaxaca (*Sallé*).

Brownish fuscous, the head beneath, and sometimes the front of the thorax, rufo-testaceous. Very finely, almost invisibly, punctured; and only clothed with the finest and shortest pubescence, which under the microscope appears setulose, or upright and shining, but not hoary. The thorax in the male is quadrate, prominent, and elevated in front, the middle of the front margin being produced into two denticulations, which are close together, and not acute; in the female the thorax narrows a little in front. The head is small, the clypeus with two elevated but very small denticules.

This species reminds one of the European *C. bidentatus*, but it is but half the size, whilst the punctuation is not distinct as in that species, and there is no depression between the thoracic protuberances.

In one specimen these thoracic projections scarcely amount to more than a small notch in the front margin. About six examples from Sallé's collection.

11. **Cis subfuscus.**

Brunneus vel fuscus, antennis pedibusque testaceis, his clava pilosella fusca; elytris densius brevissime pube erecta vestitis, sat fortiter punctatus, nitidus; prothoracis lateribus distincte marginatis, minute crenulatis. Long. 1⅜ millim.

Hab. MEXICO, Cordova, Vera Cruz (*Sallé*).

A small species without at first sight any special character to distinguish it, and of which at present among the few examples we possess I have not been able to distinguish sexes.

It may be compared to the European *C. vestitus* and *C. oblongus*, with which, as to size and vestiture, it agrees fairly well, but the thorax is broader and does not narrow in front; the punctuation is more confused; the club of the antennæ is laxer, and hairy, its two first joints are not transverse, and its apical joint is acuminate. The pubescence is serial. In the less mature examples the elytra have a slight olivaceous tinge.

12. **Cis cylindrus.**

Elongatus, cylindricus, nigro-piceus; elytris piceis, dense subtiliter, prothorace minus crebre, punctatis; pedibus rufis; antennis testaceis, clava fusca. Long. $2\frac{1}{4}$ millim.

Hab. PANAMA, Caldera in Chiriqui (*Champion*).

A species of *Cis* resembling the European *C. alni* in size. Its head is as wide as the thorax in front, densely and finely punctate. The thorax is longer than wide, thickly but distinctly, and rather sparsely, punctured near the base; the disc has a constricted transverse impression; the sides are much deflexed, and with the base are margined by a fine line. The elytra are densely punctulate, not deeply nor at all in series; the suture is even, without any distinct stria, and no pubescence or setæ are visible. There is but one specimen which I can assign to this species, and the description is therefore provisional and defective. A single specimen of a *Cis* from Tolé, and one from Mexico, come very near to it, but it would be rash to assume they were conspecific.

13. **Cis —— ?**

Hab. MEXICO, Oaxaca (*Sallé*).

Several specimens of a minute species, about one millimetre in length and with pruinose pubescence; apparently all are females, and I do not consider there is sufficient material for its description.

14. **Cis —— ?**

Hab. GUATEMALA, Zapote (*Champion*).

Another minute species. Two specimens.

15. **Cis —— ?**

Hab. GUATEMALA, Zapote (*Champion*).

The antennæ in this minute species appear to be nine-jointed, but there being only two specimens, the material is not sufficient to yield the necessary examination by dissection.

CERACIS (p. 223).

Ceracis militaris (p. 223).

Hab. Mexico, Vera Cruz (*Sallé*).

It is in error that *C. furcifer* is given as a synonym of this species. I was in fact led into the mistake by specimens of *C. furcifer* being labelled *C. militaris* in Sallé's collection; these are those from Tuxtla. The specimens from San Juan in Vera Paz also belong to *C. furcifer*, one of which is figured on Tab. X. fig. 26. I had not at the time the opportunity of verifying these species with M. Mellié's descriptions and figures, which I have now done. The localities given under *C. militaris* on p. 223 all therefore refer to *C. furcifer*, which should follow the present species.

There are, however, eight specimens from Vera Cruz in Sallé's collection which I refer to *C. militaris*, with perhaps a very little uncertainty, the thoracic prominences in the male being a little less pronounced, and the whole insect more cylindrical than Mellié's figure would appear to represent. It is also to be regretted that Mellié was not informed of, or did not give, the precise locality in Mexico from whence his species came. Our species is the smallest I have yet seen of this group; from *C. furcifer* it differs entirely by the two small reflexed projections on the front of the thorax in the male, in which sex the clypeus bears a reflexed ridge in front, which appears to be bidenticulate. The females are of course very difficult to separate, but it is probable that the nearly allied species will not generally occur together; in this species the very small size and cylindrical form will serve for a distinction.

1 (A). **Ceracis furcifer.**

Ceracis militaris, Mellié, Ann. Soc. Ent. Fr. 1848, p. 379; ante, p. 223 (partim).

To the Guatemala locality given, add:—Yzabal (*Sallé*).

Mellié informs us that he had seen many examples of this species in Melly's collection, from Cayenne and Peru, and in Chevrolat's and Reiche's collection, from Surinam. It appears to me highly improbable that all these really pertained to *C. furcifer*. Sallé's specimens from Guatemala, he says, were taken at Yzabal in a species of *Polyporus*. I apprehend there are many closely allied species *.

3. **Ceracis quadricornis.**

Oblongus, cylindricus, nigro-piceus, nitidulus, creberrime vix visibiliter punctatus. Long. 1 millim. ♂.

Mas. Prothoracis margine antico bi-denticulato, clypeo in medio bi-elevato.

Hab. Mexico, Tuxtla (*Sallé*).

* I possess two specimens of a *Cis* from Mexico labelled respectively *Ceracis variabilis* and *Ceracis mutabilis*, Chevrolat. It is in the highest degree improbable that these specimens are correctly named, as both are females; or that a species from Cuba should also occur in the interior of Mexico.

Although there is but a single male specimen of this insect it is clearly distinct from *C. militaris*, being considerably larger, with the front thoracic denticles not so much produced into a lamina. It would seem to be very near *C. sallæi*, but I decline to think it likely to be identical with a species from New Orleans. Another example from Mexico in the Sallé collection may possibly be the female; in this the thorax is unarmed, but the head has a distinct elevated lamina deeply emarginate. There is, however, no evidence to show that these two insects are in any way connected. They are both labelled "*Cis militaris*" in Sallé's collection.

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1 LYCUS CARMELITUS.
2♂ „ GODMANI.
3♂ „ SCHÖNHERRI.
4 LYCOSTOMUS LINEICOLLIS.
5♂ „ FULIGINOSUS.
6♀ „ SORDIDUS.
7♀ „ CHAMPIONI.
8♂ „ LORIPES.
9♀ LYCOSTOMUS SEMIUSTUS.
10. LYGISTOPTERUS AMABILIS.
11. CALOPTERON BIFASCIATUM.
12. „ „ *var.*
13 „ AFFINE.
14♀ „ PALLIDUM.
15 „ MELANOPTERUM.
16 „ JUVENILE.
17 „ RETICULATUM.
18 CALOPTERON FLAVIPES.
19♀ „ BELTII.
20 PLATEROS BOURGEOISI.
21 CALOPTERON TRISTE.
22 CÆNIA INTERRUPTA.
23 „ SCAPULARIS.
24 „ CARDINALIS.
25 CALOPTERON SCAPULARE.

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Hanhart imp
241

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Inches 1 2 3 4 5 6 7 8
Centimeters 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19

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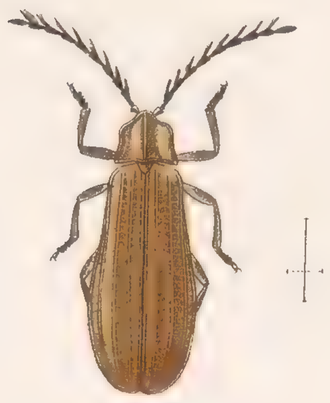

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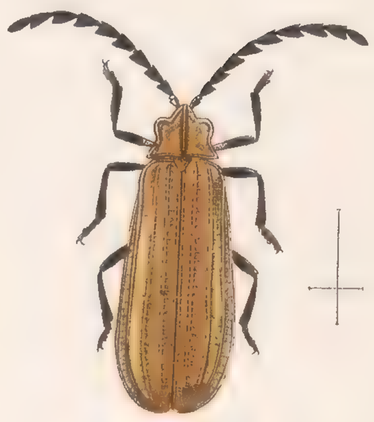

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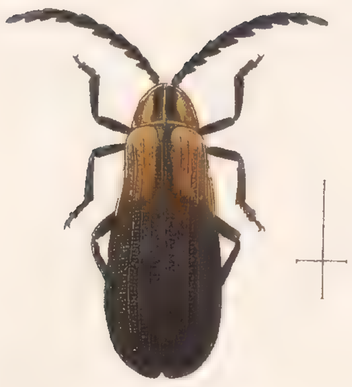

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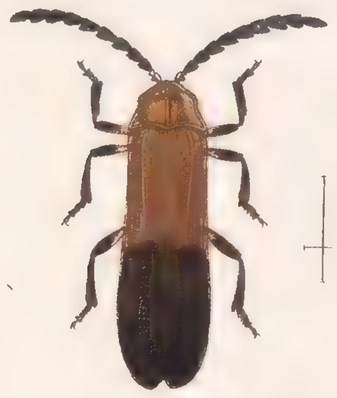

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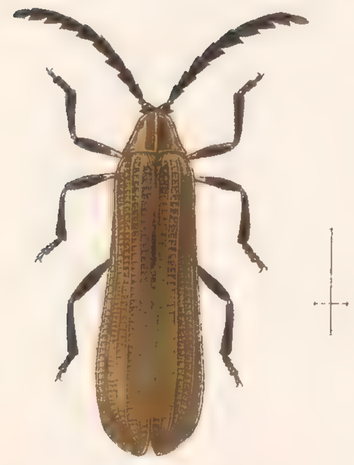

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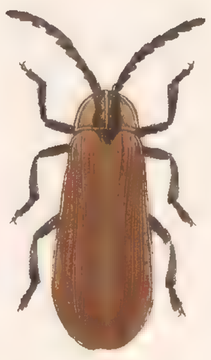

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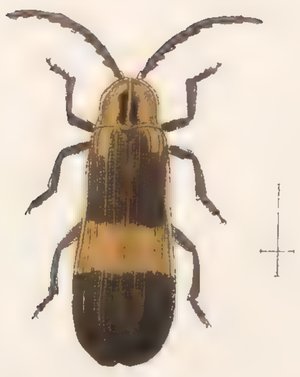

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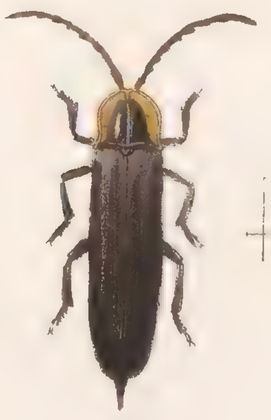

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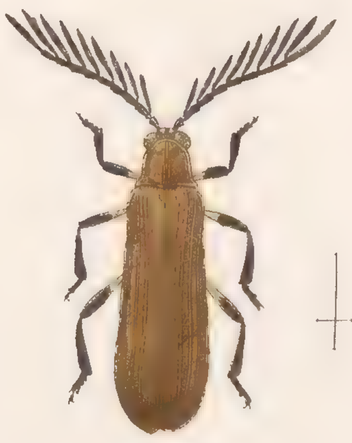

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1 LYGISTOPTERUS HÆMATOPTERUS.
2 LYCOSTOMUS SOMMERI.
3 CALOPTERON CORRUGATUM.
4 „ DIVERGENS.
5 „ SCAPULARE.
6 „ TRICOSTATUM.
7 „ MATUTINUM.
8 ♀, 9 ♂ CALOPTERON RUFULUM.
10 PLATEROS BOURGEOISI.
11 ♀, 12 ♂ CALOPTERON PENNATUM.
13 „ OBLIQUUM
14 „ LINEARE.
15 PLATEROS SEMINIGER.
16 PLATEROS LATERITIUS.
17 „ LATOURNEURI.
18 „ BOGOTENSIS.
19 „ PARALLELUS.
20 ♂ CALOCLADON TESTACEUM.
21 CALOPTERON ICHNOIDES.
22 „ MIMICUM.

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Hanhart imp
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Blue Cyan Green Yellow Red Magenta White 3/Color Black
Centimeters 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19
Inches 1 2 3 4 5 6 7 8

1♂ LAMPROCERA PICTA.
2 HYAS RHOMBOIDEA.
3 ÆTHRA DESPECTA.
4 LUCIDOTA BELLA.
5 „ APICALIS.
6♀ „ DISCOLOR.
7 PHOTINUS AURORA.
8 „ SANGUINICOLLIS.
9 PHOTINUS LUNICOLLIS.
10 „ GUATEMALÆ.
11 „ PERLUCENS.
12 „ PERELEGANS.
13♂ PYRECTOMENA STRIATELLA.
14 PHOTURIS LUCIDICOLLIS.
15 „ COLLARIS.
16 ASPIDOSOMA ÆGROTUM.
17 „ DEPICTUM.
18 „ COSTATUM.
19 PHOTURIS MOLLIS.
20 DRILOLAMPADIUS STOLATUS.
21 CLADODES PLUMOSA.
22 PHÆNOLIS LACINIATUS.
23 PHENGODES BIMACULATA.

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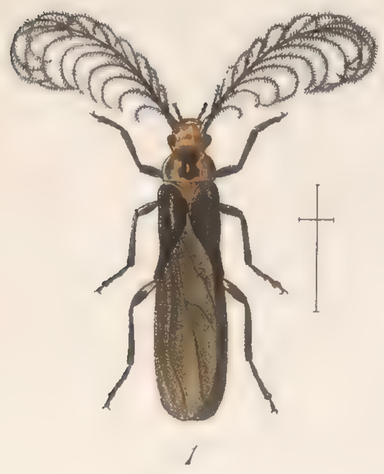
1 CALLEROS PUNICEUS
2 CALOCLADON PECTINICORNE
3 CALOLYCUS CALANTICATUS
4 CALOPTERON RUBRICOLLE.
5 " TENUE
6 PHOTINUS SALVINI.
7 CRATOMORPHUS PICIPENNIS.
8♀ 9♂ ASPIDOSOMA BILINEATUM.
10♂ PHOTINUS PRODUCTUS
11♀ " EXTENSUS
12 " CONGRUUS
13 " GLISCENS
14 " METEORALIS
15 " ASPIDOSOMA PULCHELLUM
16 PHOTINUS OVATUS
17 " NIGRIDORSIS
18♂ LUCIDOTA LUGENS.
19 PYRECTOMENA ANGULATA.
20 " VEXILLARIA
21 PHOTINUS STURMII.
22 LUCIDOTA DIAPHANURA
23♀ 24♂ PHOTINUS CINCTELLUS.
25 " CONSANGUINEUS
26 PHOTURIS DISCICOLLIS.

W. Purkiss lith. Hanhart, imp 250

Biol. Centr.-Am. Coleoptera Vol. III Pl. 2. Table 4.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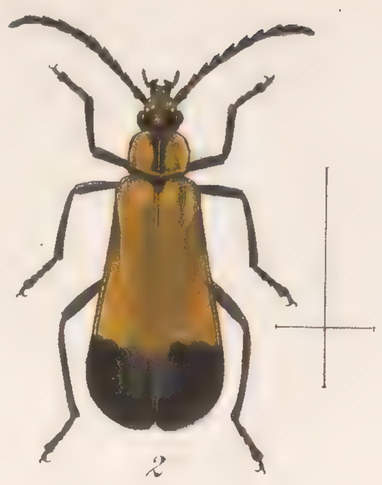
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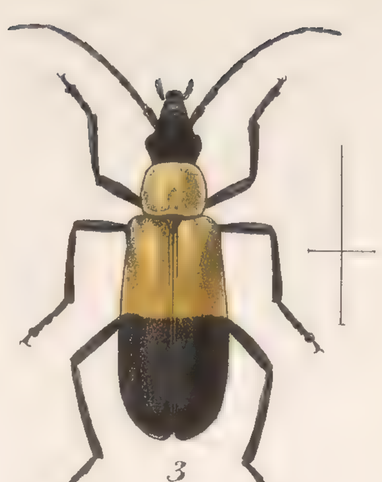
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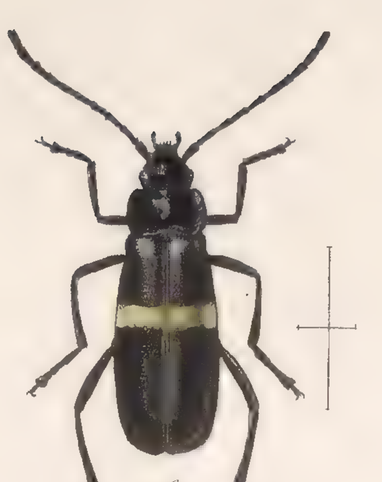
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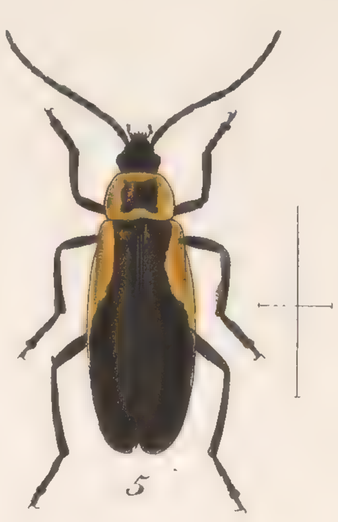
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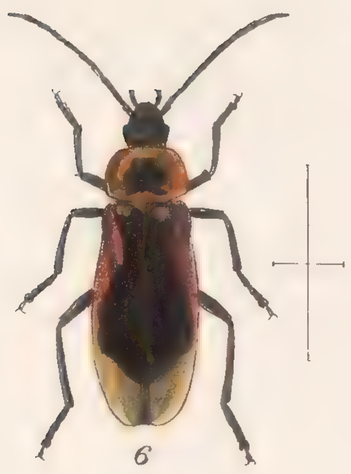
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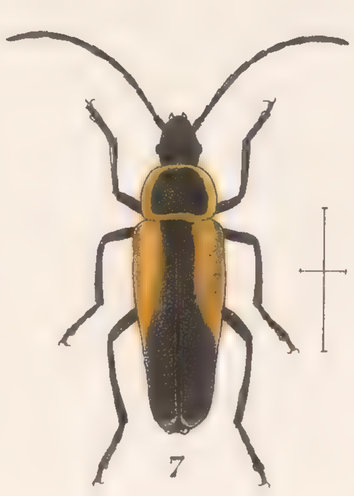
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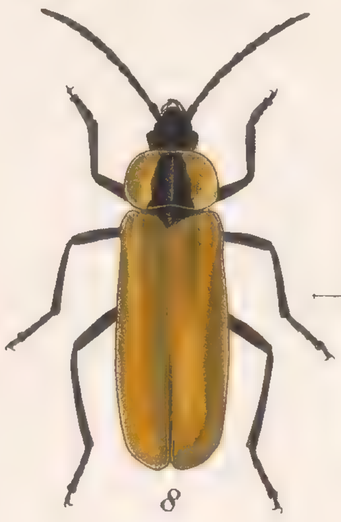
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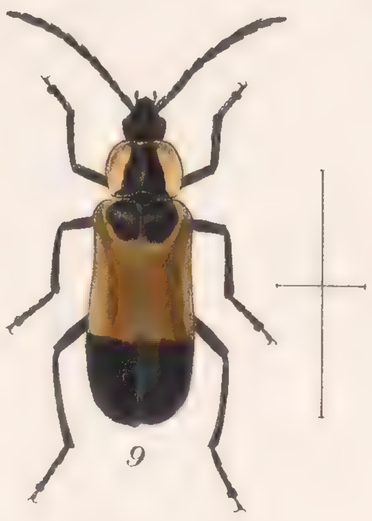
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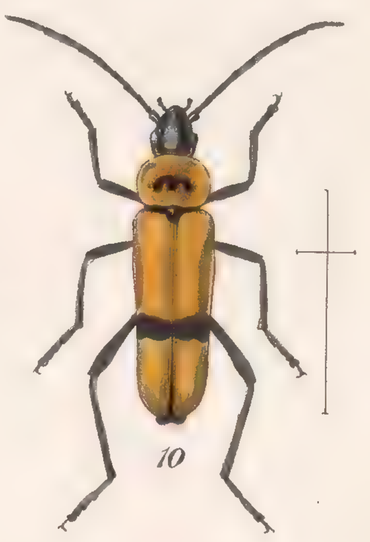
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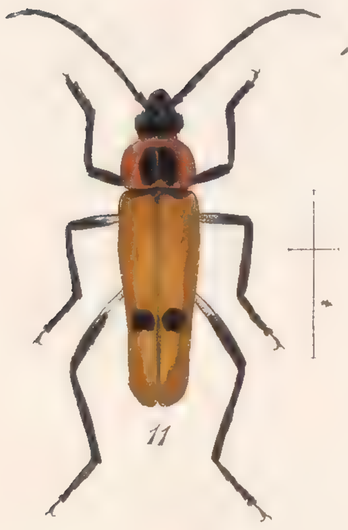
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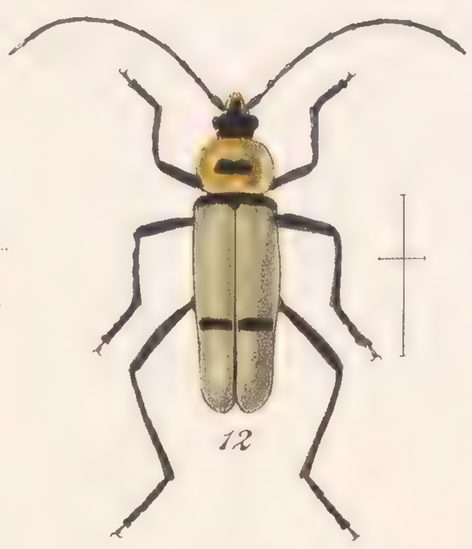
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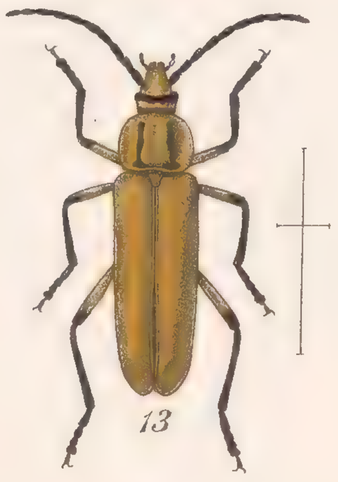
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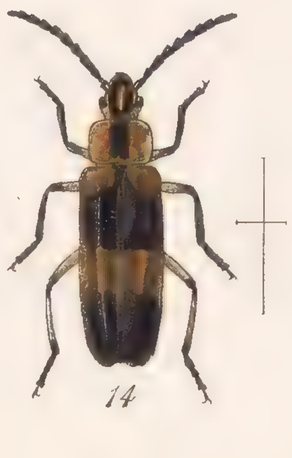
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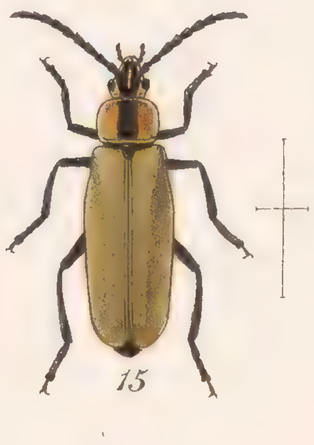
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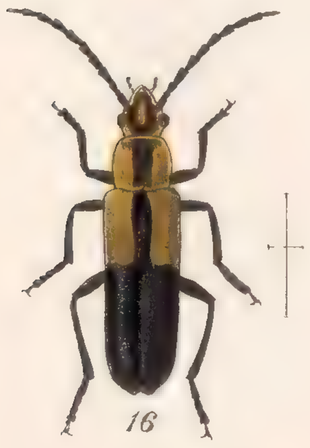
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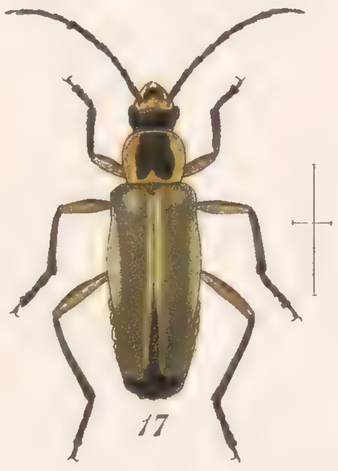
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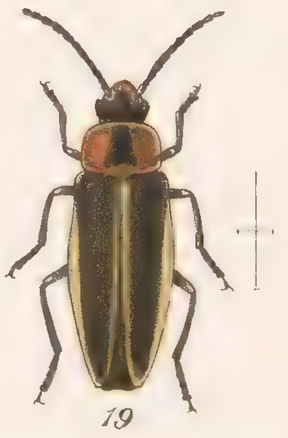
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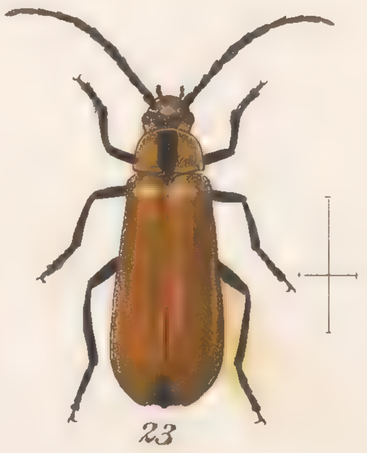
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24

1. PHENGODES BIPENNIFER, *var.*
2. DAIPHRON LYCIFORMIS.
3. CHAULIOGNATHUS DIMIDIATUS.
4. " JANUS, *var.*
5. " JUCUNDUS.
6. " TRICOLOR.
7. " HASTATUS.
8. CHAULIOGNATHUS SODALIS.
9. " SODALIS, *var.*
10,11. " TOGATUS, *var.*
12. " NIGROCINCTUS.
13 " BILINEATUS.
14♀15♀16♂. DAIPHRON PROTEUM, *var.*
17. CHAULIOGNATHUS EMACIATUS.
18. TELEPHORUS CLEROIDES.
19. " PHOTINOIDES.
20. " NORMALIS.
21. SILIS LYCOIDES.
22. TELEPHORUS HISTRIO.
23. SILIS? PURPURASCENS.
24. DAIPHRON CRASSICORNE

Whitelaw Lith

Hanhart imp
274

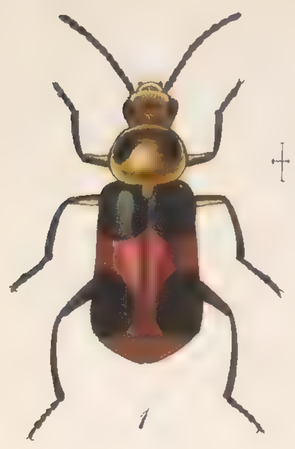
Inches 1 2 3 4 5 6 7 8
Centimeters 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19
KODAK Color Control Patches © The Tiffen Company, 2000
Kodak LICENSED PRODUCT
Blue Cyan Green Yellow Red Magenta White 3/Color Black

1. SILIS VARIANS *Var.*
2 ♂. „ PRÆMORSA.
3 ♂. „ DILACERATA.
4. EURYOPA SINGULARIS.
5. „ ALBICINCTA.
6. „ EROIDES.
7. TRYPHERUS FORFICULINUS.
8. BELOTUS ABDOMINALIS.
9. MARQNIUS DICHROUS.
10 ♂. 11 ♀. LOBETUS MIRABILIS.
12. PTORTHODIUS RAMOSUS.
13 ♂. THINALMUS PECTINICORNIS.
14. MALTHINUS LATICEPS.
15. TELEPHORUS LAMPYROIDES.
16. CHAULIOGNATHUS SUBMARGINATUS.
17. SILIS LATICOLLIS.
18 ♀. DISCODON SERRICORNE.
19 ♀. TELEPHORUS PHOTURINUS.
20 ♂. DISCODON NORMALE.
21 ♂. 22 ♀. COLLOPS AULICUS.
23 ♀. „ VITTATUS.
24. ANTHOCOMUS PUSILLUS.
25. „ RUFIPENNIS

W Purkis lith.

Hanhart imp

285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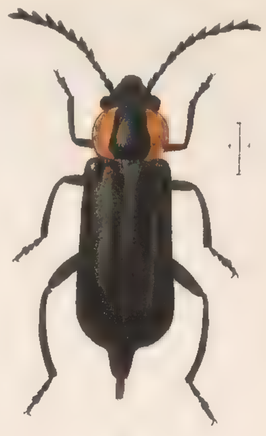
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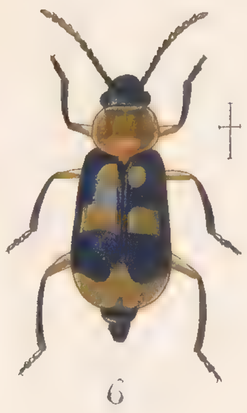
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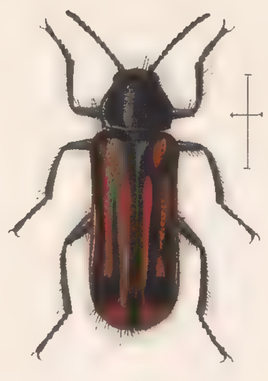
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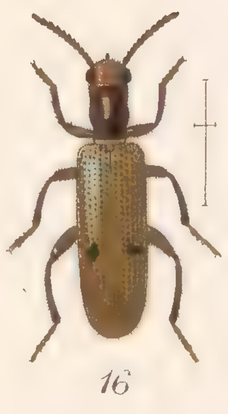
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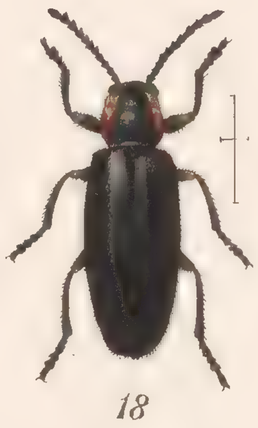
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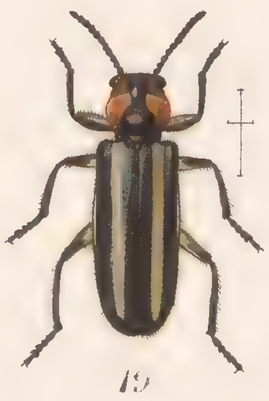
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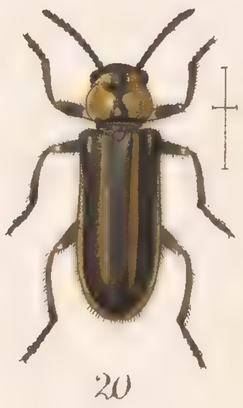
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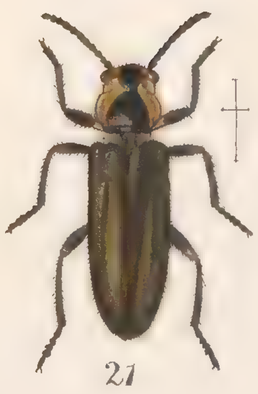
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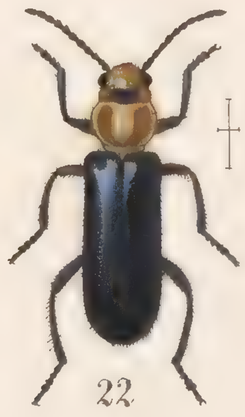
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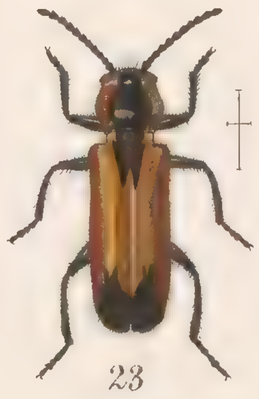
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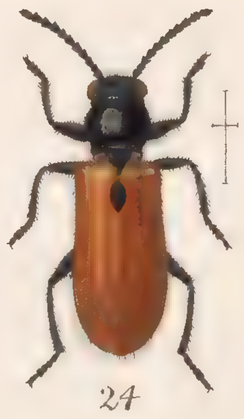
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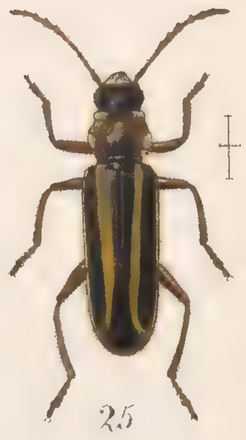
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1 ANTHOCOMUS MACULOSUS.
2 EBÆUS ANEO-VIRENS.
3 MELITOMMA BRASILIENSE.
4 DROMANTHUS QUADRIMACULATUS
5 „ DECIPIENS.
6 „ JUCUNDUS.
7 ATRACTOCERUS BRASILIENSIS
8 LISTRUS CUPRO-NITENS.

9. ASTYLUS VITTATUS.
10 CYMATODERA DISCOIDALIS.
11 „ VALIDA.
12 „ CHAMPIONI.
13 „ SALLÆI.
14 „ MARMORATA.
15 „ DISCOIDALIS *var*
16 „ BIPUNCTATA.
17 PRIOCERA STICTICA.

18 COLYPHUS VENTRALIS.
19 „ DISTINCTUS.
20 „ QUADRILINEATUS.
21 „ *var.*
22 „ SIGNATICOLLIS.
23 „ MUTABILIS.
24 „ SANGUINIPENNIS.
25 „ FLORALIS.

W.Purkiss lith. Hanhart imp 295.

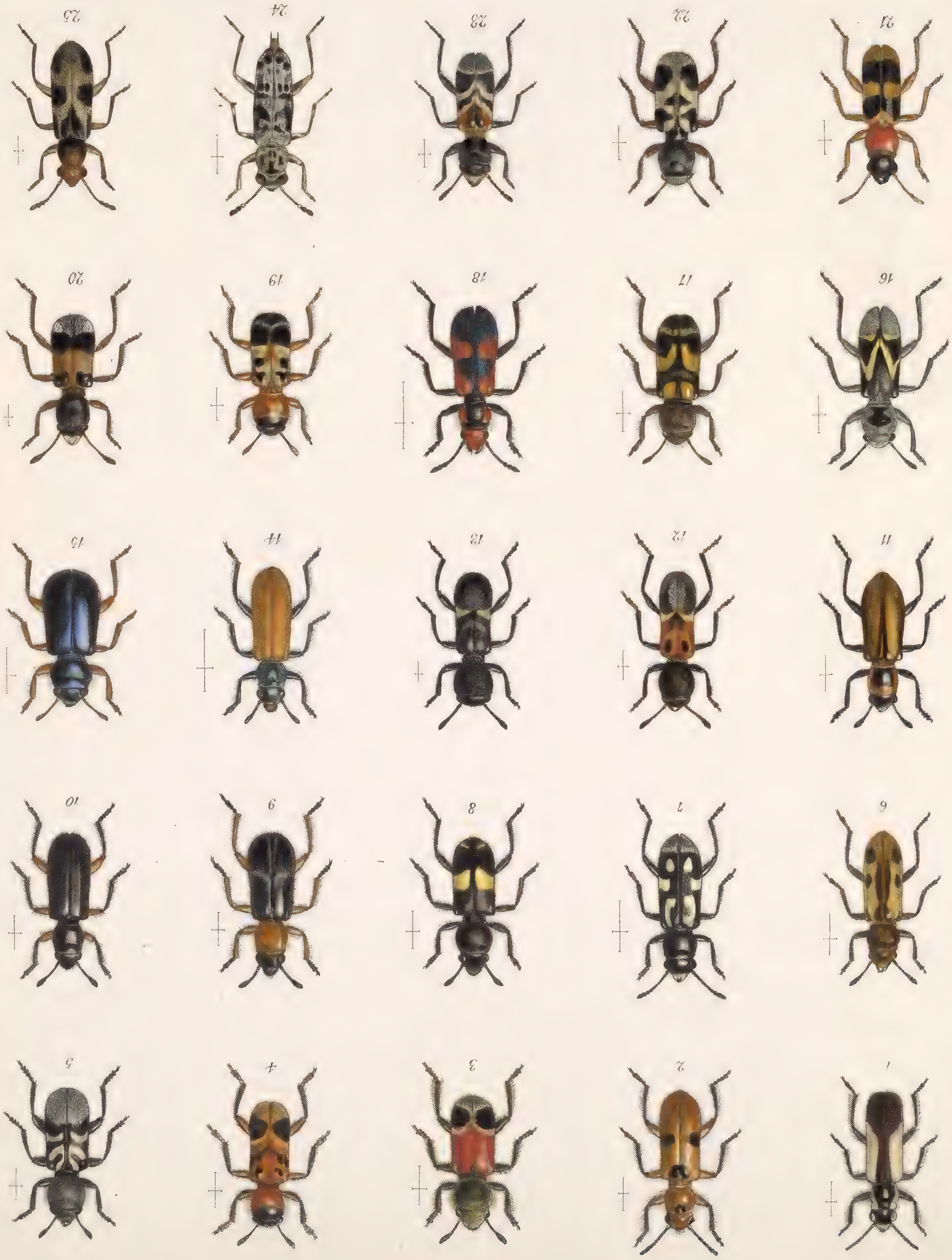
KODAK Color Control Patches © The Tiffen Company, 2000 Kodak LICENSED PRODUCT
Blue Cyan Green Yellow Red Magenta White 3/Color Black
Centimeters 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19
Inches 1 2 3 4 5 6 7 8

Inches 1 2 3 4 5 6 7 8
Centimetres 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19
KODAK Color Control Patches © The Tiffen Company, 2000
Kodak LICENSED PRODUCT
Blue Cyan Green Yellow Red Magenta White 3/Color Black

1 COLYPHUS MUTABILIS *Var.* 9.10.11 CLERUS NITIDUS, *Var.* 19 CLERUS QUADRINODOSUS.
2 " CRIOCERIDES. 12 " CONCINNUS. 20 " TUBERCULARIS.
3 CLERUS OPIFEX. 13 " CONTRACTUS. 21 " ATRICEPS.
4 " QUADRINODOSUS, *Var.* 14 " RUBRIFENNIS. 22 " X-ALBUM.
5 " CINEREUS. 15 SALLEA NECROBIOIDES. 23 " BEATUS.
6 " CYLINDRICUS. 16 CLERUS CUNEATUS. 24 EPIPHLŒUS SETULOSUS.
7 " PICTUS. 17 " RECURVATUS. 25 " ERYTHROCEPHALUS.
8 " ÆSOPIUS. 18 AULICUS MONTICOLA.

W. Purkiss lith.

Hanhart imp. 299



Coleoptera Vol. III Pl. 2. Tab. 8.

Edward Newman del.

Inches 1 2 3 4 5 6 7 8
Centimetres 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19
KODAK Color Control Patches © The Tiffen Company, 2000
Kodak LICENSED PRODUCT
Blue Cyan Green Yellow Red Magenta White 3/Color Black

W. Parkiss lith.

1. 2 TILUS OCCIDENTALIS.
3 HYDNOCERA GUATEMALE.
4 " SUBULATA
5 " TRICHROA.
6♀ " CORTICINA.
7 " IMPRESSA.
8 " CINCTA.
9 " NITIDICOLLIS.
10 PYTICERA CHAMPIONI.
11 PLATYNOPTERA MEXICANA.
12 PELONIUM BILINEICOLLE.
13 " OCTONOTATUM.
14 " LINEOLATUM.
15 " AMABILE.
16 " METALESCENS.
17. ORTHOPLEURA PURPUREA.
18♂,19♀ ICHNEA MEXICANA.
20 " RELIGIOSA.
21 " MEXICANA *var.*
22 " ENOPLIOIDES.
23 " DISJUNCTA.
24 " *var.*
25 LEBASIELLA PALLIPES.
26 " BISBINOTATA.

Hanhart imp.
306

21 22 23 24 25 26

16 17 18 19 20

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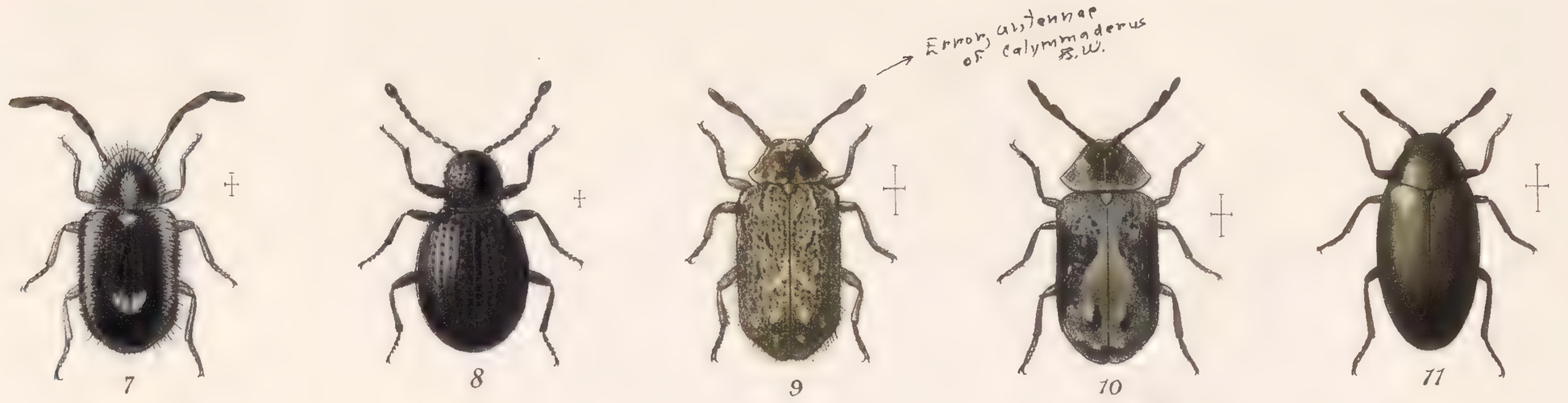
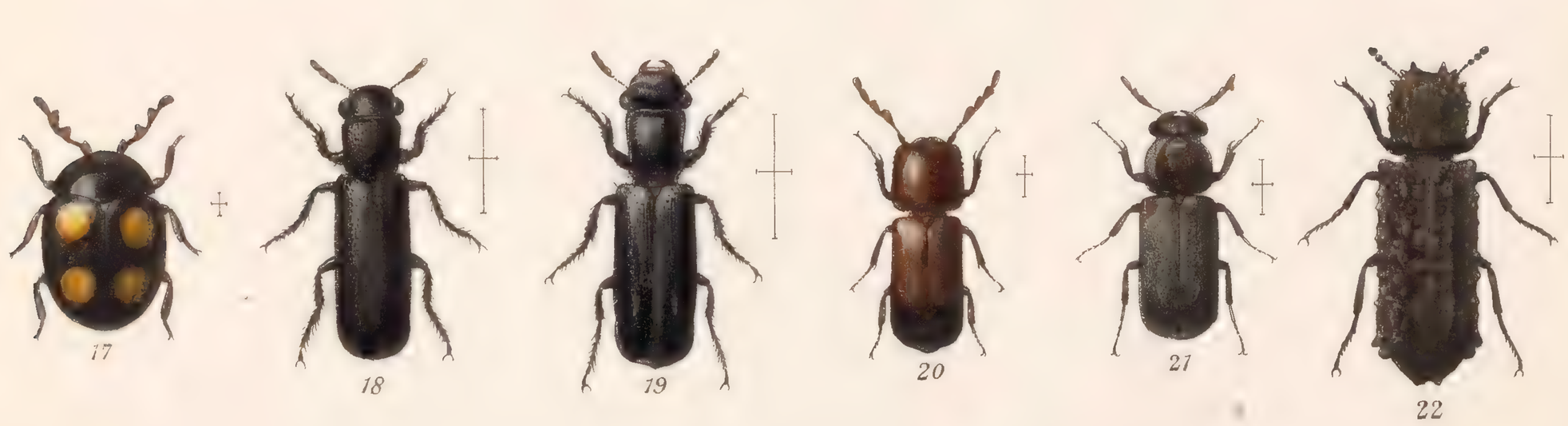
1 2 3 4

Biol. Centr.-Am. *Coleoptera Vol. III Pt. 2 Pl. 9*





1 ICHNEA HISTRIO.
2 „ PANAMENSIS.
3 TRIGONOGENIUS NIVEUS.
4 „ „ *var.*
5 PTINUS LATEFASCIATUS.
6 „ LATERALIS.
7 TRICHODESMA ALBISTOLATUS.
8 PITNUS PYGMÆUS.
9 TRICHODESMA IMPERATOR.
10 TRICHODESMA ALBINA.
11 THAPTOR PUPATUS.
12 „ THROSCOIDES.
13 CATHORAMA SEMINULUM.
14 MICRANOBIUM PULICARIUM.
15 LIÖOLIUS PUNCTATUS.
16 DORCATOMA TOMENTOSA.
17 „ QUADRIMACULATA.
18♀.19♂ POLYCAON EXESUM.
20 TETRAPRIOCERA LONGICORNIS.
21 XYLOPERTHA SERICANS.
22 BOSTRICHUS VERRUCOSUS.
23 CIS FASCIATUS.
24 „ BISBIDENS.
25 MACROCIS TAURUS.
26 CERACIS MILITARIS.
27 „ TRICORNIS.

W. Purkiss lith. Hanhart imp.

KODAK Color Control Patches © The Tiffen Company, 2000 Kodak LICENSED PRODUCT
Blue Cyan Green Yellow Red Magenta White 3/Color Black
Centimeters 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19
Inches 1 2 3 4 5 6 7 8

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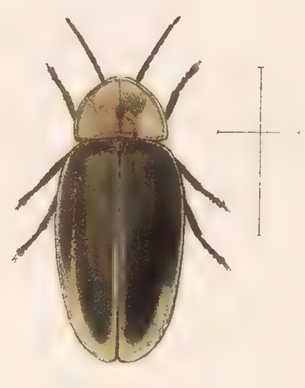
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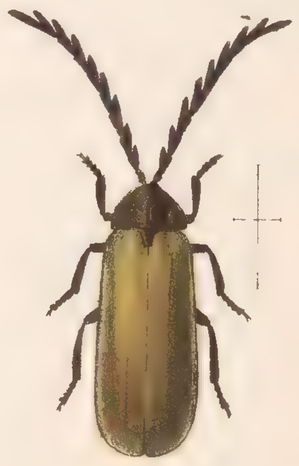
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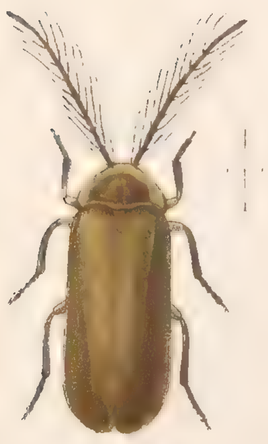
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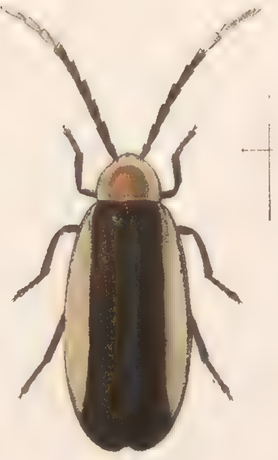
21

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1. LYCOSTOMUS BUCOLICUS.
2. LYGISTOPTERUS LÆTUS.
3. CALOPTERON RUBROTESTACEUM.
4. " SIMULATOR.
5. " NOTATULUM.
6. " IMITATOR.
7. " DECIPIENS.

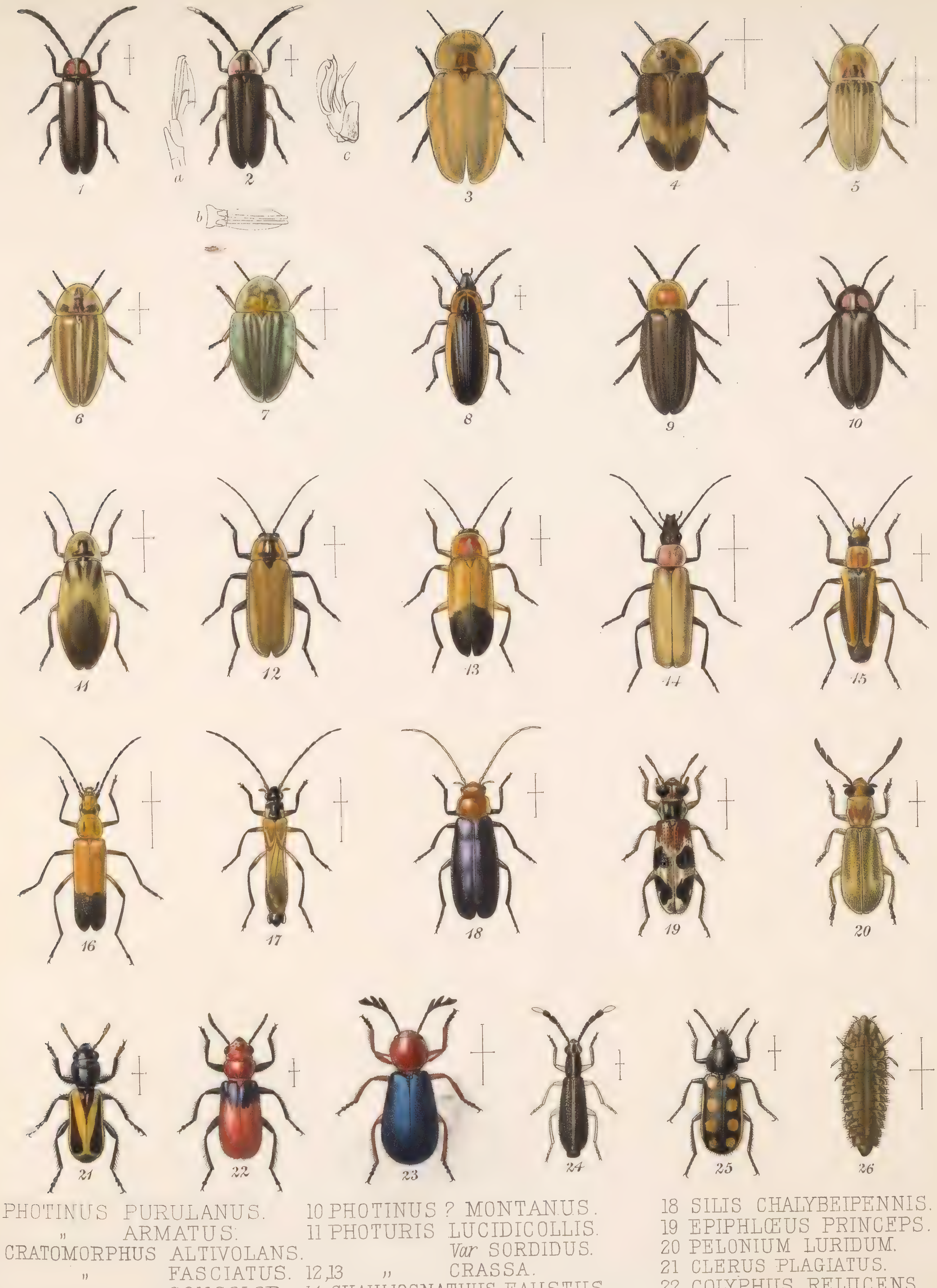
W. Purkiss lith.

8. PLATEROS FORRERANUS.
9♀. " APICALIS.
10♂ 11♀. CALOCLADON EPHIPPIUM.
12. LINOPTES IMBREX.
13♂ 14♀. CALOCLADON RUBIDUM.
15. LYCINELLA OPACA.
16. " PARVULA.
17. LAMPROCERA PICTA. *Var.*

18. CRATOMORPHUS OVATUS.
19. ÆTHRA BRUNNIPENNIS.
20♂. DRILOLAMPADIUS SCUTELLARIS. *Var.*
21. LUCIDOTA XANTHOPLEURA.
22. " INCOMPTA.
23. " DISCOLOR. *Var.*
24. MEGALOPHTHALMUS COLLARIS.

Hanhart imp
348.

KODAK Color Control Patches © The Tiffen Company, 2000 LICENSED PRODUCT Kodak Blue Cyan Green Yellow Red Magenta White 3/Color Black Inches Centimeters



1 PHOTINUS PURULANUS.
2 " ARMATUS.
3 CRATOMORPHUS ALTIVOLANS.
4 " FASCIATUS.
5 " CONCOLOR.
6 ASPIDOSOMA ÆLIANUM.
7 " PHYSONOTUM.
8 LUCAINA MARGINATA.
9 PHOTINUS ? BREVICORNIS.
10 PHOTINUS ? MONTANUS.
11 PHOTURIS LUCIDICOLLIS. *Var* SORDIDUS.
12,13 " CRASSA.
14 CHAULIOGNATHUS FAUSTUS.
15 " OBLIQUUS.
16 " BILINEATUS, *Var.*
17 MARONIUS DICHROUS, *Var.*
18 SILIS CHALYBEIPENNIS.
19 EPIPHLŒUS PRINCEPS.
20 PELONIUM LURIDUM.
21 CLERUS PLAGIATUS.
22 COLYPHUS RELUCENS.
23 CHARIESSA ELEGANS.
24 ICHNEA VITTICOLLIS.
25 ASTYLUS OCTOPUSTULATUS.
26 LARVA OF ASPIDOSOMA ? SP ?.

W. Purkiss lith.
Hanhart imp.

KODAK Color Control Patches © The Tiffen Company, 2000
Kodak LICENSED PRODUCT
Blue Cyan Green Yellow Red Magenta White 3/Color Black
Inches 1 2 3 4 5 6 7 8
Centimetres 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19

1, 1a, ♂ ♀ COLLOPS TRICOLOR.
2 ATTALUS SUBFASCIATUS.
3, 3a, „ CALCARATUS.
4 „ CARINATUS.
5 LEMPHUS SERRICORNIS.
6 DROMANTHUS NITIDICOLLIS.
7 TILLUS COLLARIS.
8 CYMATODERA SATURATA.

W. Purkiss lith.

9 PRIOCERA CLAVIPES.
10 COLYPHUS BILINEATUS.
11 PŒCILOCHROA PLUMBEA.
12 CYMBOLUS RUFOPICEUS.
13 ANTIXOON CRIBRIPENNE.
14 HYDNOCERA FURCATA.
15 „ VITRINA.
16 „ CYLINDRICOLLIS.
17 ANOBIUM? SERICATUM?

18 MIROSTERNUS BRUNNEIVILLIS.
19 COLYPHUS GRACILIS.
20 TRIGONOGENIUS ARCUATUS.
21, 21a, XYLOGRAPHUS SUILLUS.
22, 22a, CIS TETRACENTRUM.
23, 23a, ♂ } XYLOGRAPHUS LATIROSTRIS.
24, 24a, ♀ }
25 DINODERUS PERFOLIATUS.

Hanhart imp.
421.